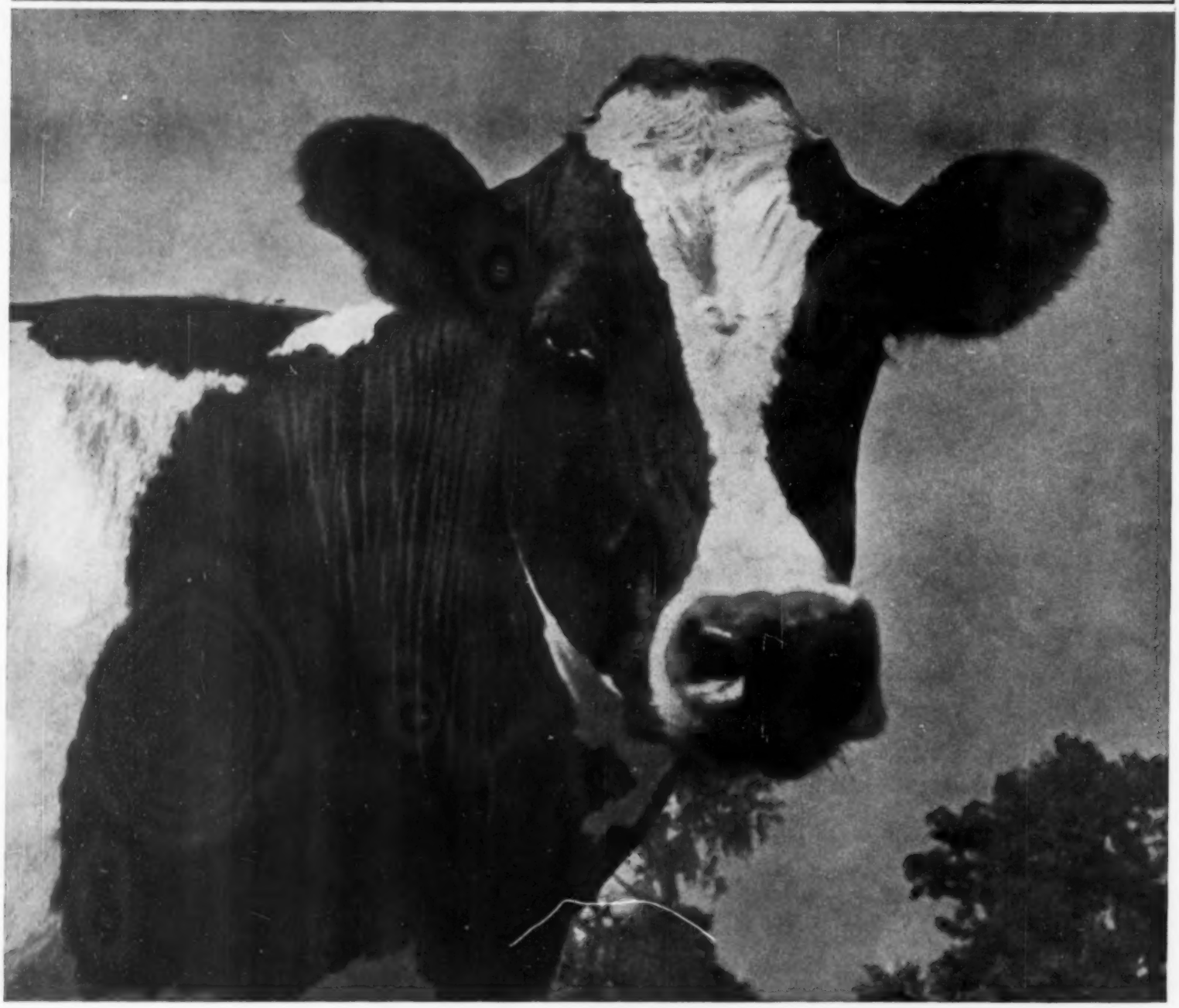
HOARD'S DAIRYMAN

MARCH 25, 1958

THE NATIONAL DAIRY FARM MAGAZINE

CYANAMID

Aureomycin helps build up herd health and vigor



Dairy cows, too, can benefit from Aureomycin® in feeds!

Now you can put AUREOMYCIN Chlortetracycline in good feeds to work—*increasing your dollar returns* from your dairy herd!

AUREOMYCIN aids in keeping your cows healthier. It helps prevent respiratory disease (rhinotracheitis–shipping fever complex), foot rot, bacterial diarrhea and sub-clinical infections–money-losing diseases–*that affect productive capacity.* Guarding health with AUREOMYCIN helps *assure steady and profitable production.*

Fed as directed, AUREOMYCIN helps protect your cows and experimental data show conclusively that there is no AUREOMYCIN in the milk.

Ask your feed manufacturer or feed dealer for dairy feeds that provide one-tenth of a milligram of AUREOMYCIN Chlortetracycline per pound of body weight per head per day.

Spring calves need the protective power of AUREOMYCIN. They'll scour less, grow faster, develop the sound bodies needed for full production later on. Be sure your calves get AUREOMYCIN daily.

AMERICAN CYANAMID COMPANY • FARM AND HOME DIVISION • NEW YORK 20, N. Y.

New! The Handsomest, Hardest Working Farm Hand On Four Wheels!

It's Chevrolet's new Fleetside pickup. It combines new style and load space with stamina and economy that are typical of every truck in the Task-Force 58 lineup!

Take a good look at the best looking pickup of all—Chevrolet's new Fleetside! Here's a truck capable of fitting into almost any farm chore you've got—from hauling stones to hauling groceries. Like all Chevies, it's styled for your pride, engineered for work. Like all Chevies, it's built for *big* loads—its body is a full 6 feet wide, and is available in lengths of 78" and 98". *You get the greatest load space of any comparable low-priced pickup!* Double-walled lower body construction adds extra strength to the cargo box. Loading heights are low and the graintight tailgate becomes a sturdy platform for extra-long loads when extended.

Powerful short-stroke V8 engines offer stamina and performance that are hard to beat. And improved 6's get the most out of a gallon of gas—keep costs down, down, *down!* Husky parallel-design frame totes king-sized loads without strain, sturdy axles and spring suspensions protect cargoes, add long life, offer around-the-clock economy. There's hustle, muscle and style in *every* Chevy. Ask your Chevrolet dealer to show you the right truck for your farm job. See him today. . . . Chevrolet Division of General Motors, Detroit 2, Michigan.

CHEVROLET

TASK·FORCE 58 CHEVROLET TRUCKS

For Faster, Lower-Cost Forage Feeding

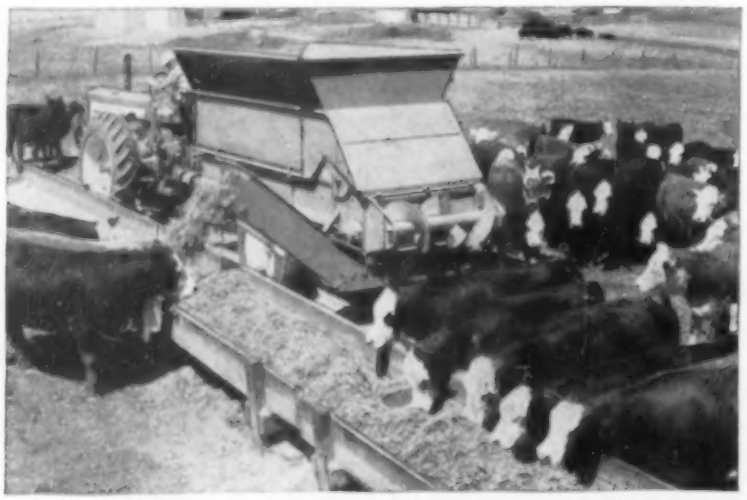
...GO JOHN DEERE

NEVER before have you had a better opportunity to cash in on forage feeding! New John Deere Equipment not only cuts costs but makes work faster and easier.

Be sure to see your John Deere dealer about the outstanding equipment described on this page. Mail coupon below for free descriptive literature.

15 Rotary Chopper Features Knife-Equipped Fan. Here's the *low-cost* chopper for mechanical pasturing—bringing the pasture to the cows—and for making quality grass silage. The 15's curved, free-swinging knives cut, chop, and deliver crops to the knife-equipped fan, assuring a proper cut for easier feeding and storage in upright and trench silos. The versatile 15 also shreds and spreads cornstalks, brush . . . handles many other jobs.

Self-Unloading 110 Chuck Wagon Mixer-Feeder. This versatile time- and work-saving forage wagon delivers material from the side into feed bunks and from the rear into blowers, hoppers, trench silos. The Chuck Wagon also mixes supplements directly into material as it's delivered through the side conveyor, assuring uniform feeding and palatability. What's more, it can be mounted on wagon running gear or truck bed to fit your operations.



Self-Unloading Forage Box Attachment Makes PTO Spreader a Double-Duty Performer. You can make the John Deere Model "N" PTO Spreader serve double duty at low cost with the new Self-Unloading Forage Box Attachment. This outfit delivers chopped material from the side into feed bunks or from the rear into blowers or hoppers. The attachment may be ordered with or without side conveyor. Two men can attach or remove the complete Forage Box in less than an hour, once the basic spreader is set up for double-duty operation.

All-Purpose No. 8 Forage Harvester Handles Every Chopping Job. Standing hay, windrowed crops, row crops—they're all "duck soup" for the No. 8 Forage Harvester. Three quickly interchangeable units make the big-capacity No. 8 an all-around feed maker. Adjustable feeding for both mower bar unit (above) and windrow pickup unit assures uniform handling of crops to match condition. "Butts-first" feeding of the row-crop unit provides uniform cutting. The heavy-duty flywheel cutter can be equipped with 2, 3, or 6 knives—provides 10 different lengths of cut with no extras to buy.

The liberal John Deere Credit Plan makes it easy to pay for equipment as it earns money for you.

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- ☐ Forage Box Attachment for Model "N" PTO Spreader
- ☐ "Mechanical Pasturing"

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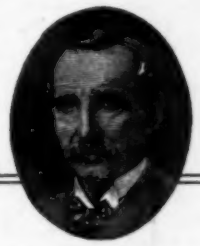
HOARD'S DAIRYMAN

The National Dairy Farm Magazine

Publishers
W. D. Hoard & Sons Co.
Fort Atkinson, Wis.



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In This Issue . . .

Volume 103, No. 6
March 25, 1958

Title Page

What we know about bloat *N. L. Jacobson and R. S. Allen* 295

Features

Cold lye best for rubber . . . . . *J. M. Jensen* 297
Your tractor can be a bronco . . . . . *D. W. Bates* 298
10 rules for establishing alfalfa . . . . . *J. F. Davis* 299
Spring is here . . . . . *M. Pike* 326
"I teach college students" . . . . . *M. B. Tesar* 332

Short Articles

Your stake in imports . . . . . *O. M. Reed* 300
Gestation fluids . . . why and how they occur *E. A. Woelffer, D.V.M.* 303
Protect springs and abandoned wells . *G. P. Barrington* 304
New uses for milk 307
Anchor pole buildings in concrete . . . *G. L. Nelson* 308
Low-cost protein in Balbo rye . . . . . *H. J. Snider* 317
Gold in the sugar bush . . . . . *B. Maits* 320
Answers to your fertilizer questions . . *A. J. Ohlrogge* 322
Aluminum roofing for dairy barns . *H. H. Nuernberger* 325

Regular Departments

Opinions and Brickbats . 290
Washington Dairygrams . 291
Farm Flashes 296
Feeding 306
Editorials 310
Questions from Our Readers 311
Dairy Farm Home . . . 326
Patterns 327
Poultry 328
Young Dairymen . . 332
Handy Hints 334
Swine 335
Artificial Breeding . . 336
Veterinary 343

COVER PICTURE

It was meal time for Pabst Fobes Burke when our staff photographer visited Pabst Farms Inc., Oconomowoc, Wis., a few weeks ago. Sylvester Weiler, manager, who has been at Pabst Farms 32 years, is making sure "Burke" gets the kind of hay he deserves.

This well-known Holstein bull has been All-American aged bull the past two years; was Reserve All-American in 1955; All-American 2-year-old in 1954; and All-American Junior yearling in 1953. In addition to his many show ring winnings, he was reclassified the day we went to press and now is the highest classified bull of the breed, with a score of 96. His two oldest daughters classified Very Good as 2-year-olds, the highest rating possible for that age.

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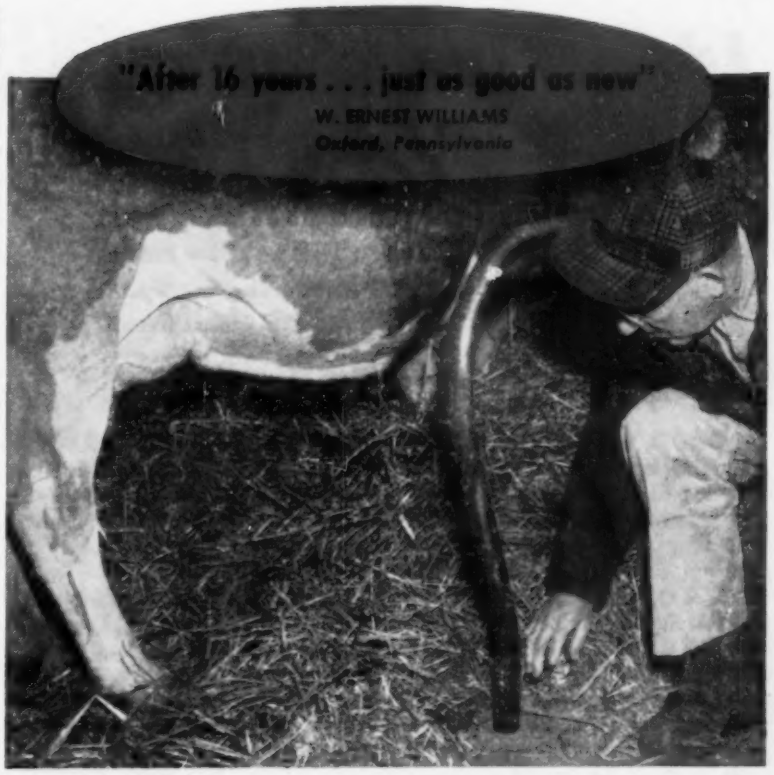
Hoard's Dairyman is published on the 10th and 25th of each month. Advertising copy for the 10th of the month issue must be received before the 15th of the preceding month. For the 25th of the month issue, copy must be received by the 1st of that month.



Hot-Dip galvanized Jamesway stalls last far longer

No maintenance . . . no painting . . . no trouble at all.

That's the report of Mr. W. Ernest Williams of Oxford, Pa., *16 years after* installing his Jamesway stalls.

"Hot-Dip galvanized Jamesways are cheaper in the long run," he says. "And if I were putting up a barn today, I wouldn't even consider painted stuff."

Like thousands of other successful dairymen coast-to-coast, Mr. Williams has learned you can depend on Jamesway equipment for rugged, dependable service . . . year after year . . . under the toughest of dairy barn conditions.

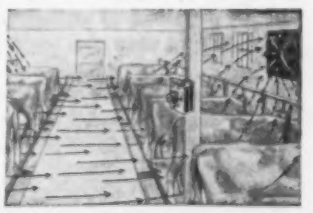
Jamesway's Hot-Dip galvanizing process gives your equipment a protective coating up to 30 times heavier than a normal covering of paint. It guards Jamesway equipment from corrosive barn fumes, moisture and hard knocks . . . adds years to equipment life.

Exclusive Jamesway stall design supplies extra head room for your cows, too. And the patented Quadruple Curve partitions give you complete cow comfort, protection and convenience. Animals relax . . . sprawl out naturally . . . stay protected from injury. What's more, you benefit from increased working space. And the partition's base is kept farther from the gutter and moisture zone.

Regardless of your barn arrangement or milking set-up, there's a Jamesway stall to meet your needs — exactly.

See your local Jamesway dealer soon for the whole story on long-lasting Jamesway stalls, pens and Power Choring equipment. Or write James Mfg. Co., Dept. HD-38, c/o your nearest branch office — **Ft. Atkinson, Wis., Lancaster, Pa., Los Angeles 63, California.**

STANDARD STANCHION TYPE
Lever or individually-operated models. Plenty of head room. Partitions between each cow.



JAMESWAY POWER VENTILATION
—boosts milk production as much as 5%. Extends building and equipment life up to 20%.

TANDEM TYPE MILKING STALL
Horizontal type panels and gates. Safer, more convenient. Easy to clean.

Jamesway

FIRST IN POWER CHORING

FOR POULTRY • FOR DAIRY • FOR LIVESTOCK

ADVERTISEMENT

Ideas for planning your milking parlor

How many stalls will you need . . . which type of stall is best for your operation . . . how much time and work can you save? The answers to these and other questions are given here.

by Joe Clay

A GOOD, well-planned milking parlor can be a real time and work saver for dairymen. But, like every other phase of modernization, you can't jump into a milking parlor without planning. These tips on the organization of a modern, efficient parlor can save you money and help avoid problems you might have to face twice a day, 730 times a year.

Two minutes per cow . . .

To feed and milk—without moving more than a few feet! Impossible? It's being done every day in modern up-to-date 4-stall milking parlors. Here's how to decide how many stalls you'll need for greatest efficiency:

Three stalls allow one operator to milk 22.5 cows in an hour. Four stalls and one man can manage 30 milkings per hour. Six stalls enable a fast operator to handle 45 cows per hour. With two more stalls, plan on 60 cows per hour from two men. That's milking *and* feeding, too. The secret of this time and labor saving is simply that cows bring the milk to you. Then, too, with a milking parlor, the udder is elevated—at the best working level. With levers, feeding mechanism and washing equipment within a few steps, you'll cut hours a day from the milking chore.

With the new Clay milking parlor stalls, easy-to-operate handles control mixing and measuring of feed. You'll feed cows with a flick of your hand.

Two types of stalls

Either gate-type or walk-thru stalls can be used in your new parlor. Both have certain advantages. With the gate-type, you'll need alleys behind the stalls. In a walk-thru installation, the stalls act as an alley. This can mean a 30% savings in space and a big cut in total building cost.

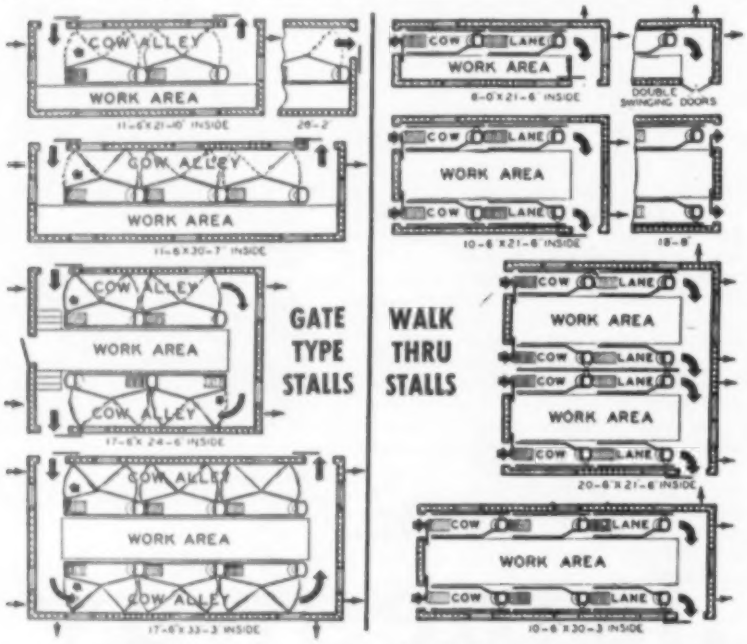
Whether you'll want gate-type or walk-thru stalls will depend on your personal preference and your specific situation. Some dairymen prefer gate-type stalls because of occasional slow milkers. Also, they like to give individual attention to certain cows. Personal opinion, amount of space available, number of operators, and handling of cows are important factors to be studied before deciding on type of stalls.

Milking parlor bulletin free

The newest, most up-to-date information on planning milking parlors is contained in a new book by Mr. Joe Clay. A copy will be sent to you free on request. Write to: Clay Equipment Corp., 382 Olive St., Cedar Falls, Iowa. Free books also available on Silo Unloaders, Mechanical Feeders, Barn Cleaners and Crop Driers. Please specify which of these free books you want.

How Clay Purchase Plan Helps You Build Your Milking Parlor Sooner

It will pay you to investigate CLAY's new Purchase Plan. A 20% initial investment is now all you need to buy your CLAY Milking Parlor. Write Clay Equipment Corp., 382 Olive Street, Cedar Falls, Iowa . . . or ask your CLAY Dealer.



TWO TYPES OF STALLS—gate type and walk-thru are shown here. Minimum space requirements are shown on sketches. Arrows show entrance and exit of cows. Pick out the plan that most nearly fits your need. Mark this plan with pen or pencil and mail to Clay at address in box above. We will gladly send you standard floor plan and money-saving ideas. This service costs you nothing.

Opinions, Brickbats, Bouquets

These columns are open to the readers of Hoard's Dairyman for the expression of their opinion on any subject, whether radical or conservative, destructive or constructive, wise or foolish, critical or commendatory. Hoard's Dairyman assumes no responsibility for opinions expressed.

Blushing for shame!

May I put in words what 98 per cent of the Yankees who read Mr. Green's letter must be thinking.

We are blushing for shame that one of our neighbors should use such hard and unfair language about the folks in any other part of our country. And, we might quote case after case where those folks that Mr. Green mentioned have produced some of the hardest working, most progressive citizens that any part of the country can boast.

Massachusetts
AN EIGHTH GENERATION YANKEE, E. E. LABAY

From an immigrant

Arthur Green, you really waved a red flag at me!

I live in a community where people live rather far apart in distance but close in friendships. Two of our neighbors have college degrees; two more have attended state university for three years; one is a school teacher, now a farmer's wife. I graduated from business college several years past.

The colleges of the Midwest are producing some of the finest students found anywhere. But, most of all, we have all attended public schools and studied American history. We learned that the only true, full-blooded Americans are Indians. I take it that you must surely be an Indian, full-blooded, or you would never call others immigrants. My ancestors were immigrants from England. They settled in the Colonies and moved westward to a land that is wide open. Their name was Browning.

I am proud to be from the area of our nation where we live far enough apart that our brains are not warped. We live independently and have in our hearts a brotherly love that always covers all mistakes, especially the mistake of being a Yankee.

My county is Kay and is joined by Osage County, land of the Indians. I sincerely hope you are a close relative of some one of these Oklahoma Indians.

Oklahoma MRS. LEO COFFEE
A NATIVE OKLAHOMAN

Agrees with Samson

In your Round Table, "If I were Secretary of Agriculture . . ." most of them don't seem to agree with Mr. Samson. Since I am far enough away and they can't reach me with eggs, I will take his part.

The reports I get indicate the government bought about 4 per cent of the milk last year and it may be 5 per cent this year. I have been producing more but am feeding it to the calves. I guess I don't know how to feed milk substitutes as I can raise a calf to 600 pounds on milk as easily as I can raise one to 400 pounds on milk substitutes. I have had a ready market and a waiting list for the bull calves since that weight makes them about the right size to fill two boxes at the locker plant. They provide tender meat without too much fat.

I can't see much difference between feeding milk substitutes to calves or eating oleo myself. If we would feed 6 per cent, that would make the market a little short and raise the price a little and we would make more both ways. I like to have the pleasure of working out my own salvation.

I don't see how they can ask Benson for more when he is already asking about 25 per cent more than Congress will give him. Is he supposed to pay it out of his own pocket?

From a 1,400-pound cow I can produce about $275 of butterfat and enough milk to raise 8 calves. Can you beat that?

One of my neighbors has a pipeline milker. He pipes it into the separator and has another pipe from the separator to the pig pen. As yet I have never heard him holler for help.

Kansas C. C. KAGARICE

Ignorance is bliss

Arthur Green's letter in the February 25 issue hit a sore spot since we are "ignorant, uneducated Middle Westerners."

Possibly he wasn't an immigrant himself but I imagine unless he was the Indian that met the Mayflower, he has some European, Asiatic, or Egyptian blood running in his veins. If he is in agriculture, he might not like the idea of the government supporting him, but we in turn support industry. When they strike and get higher wages, we, in turn, must suffer by having to pay the increase. Being a farmer, rancher, and so forth, we have to wait until someone pays more for our products, hoping our products will receive a premium price.

Possibly we are ignorant, but "ignorance is bliss" and it seems to make our life expectancy longer. Maybe we just are too ignorant to die.

Nebraska MRS. ELLIS SCHRUNK

Need "selfless" men

I wish to compliment you on your Round Table "If I were Secretary of Agriculture . . ." I found it timely and of eminent interest, showing the true reflections of operating farmers. I commend the efforts of these gentlemen and their willingness to stick their necks out.

In analyzing their comments and trying to personally envisage the respective train of thought, I find worthy substance, even if qualified in certain instances, in the comments of all of these men. However, Dean Polly of Missouri seems to hit the nail right on the head good and hard when he states very simply, "bargaining power is needed." No truer words were spoken. The dairy farmers of our nation are sorely in need of bargaining power, sustained bargaining power.

In summarizing the different known organizations (the existence

(Continued on page 292)

Washington Dairygrams

BENSON WILL STAY AS SECRETARY OF AGRICULTURE DESPITE UNPRECEDENTED PRESSURE BY REPUBLICAN CONGRESSMEN. THEIR APPEAL TO BENSON PERSONALLY, AND THEN DIRECTLY TO THE PRESIDENT, WAS UNREWARDING, THE PRESIDENT REJECTING ALL PROTESTS.

DAIRY PRICE SUPPORT DROP WILL TAKE EFFECT APRIL 1 UNLESS CONGRESS PASSES AND PRESIDENT SIGNS HOLD-THE-LINE MEASURE. PROSPECT DIM.

HEARINGS BEFORE SUBCOMMITTEES OF SENATE AND HOUSE AGRICULTURE COMMITTEES FOUND NATIONAL MILK PRODUCERS FEDERATION, NATIONAL GRANGE, FARMERS UNION, AND OTHERS TESTIFYING IN SUPPORT OF BILLS TO CONTINUE $3.25 PRICE SUPPORTS. ONLY FARM BUREAU OPPOSED; SUPPORTED BENSON IN DROP TO ABOUT $3.00. FARM BUREAU WITNESS ADMITTED HE RECEIVED $5.21.

AGRICULTURAL PRICES INCREASED 2 PER CENT DURING 30-DAY PERIOD ENDING FEBRUARY 15. PRIMARILY DUE TO HIGHER PRICES OF MEAT ANIMALS AND OFFSET SOMEWHAT BY LOWER MILK PRICES. INDEX OF PRICES PAID BY FARMERS UP 1/3 OF 1 PER CENT. PARITY RATIO UP ONE POINT FROM 82 TO 83.

SPECIAL SCHOOL MILK AND ARMED SERVICES MILK PROGRAMS APPROVED BY SENATE. EXTENDS FOR THREE YEARS $100 MILLION ANNUALLY. SIMILAR ACTION EXPECTED IN HOUSE.

CONGRESSIONAL ACTION IN TWO MONTHS SINCE CONGRESS RECONVENED FINDS NOT ONE BILL RELATING EXCLUSIVELY TO AGRICULTURE ENACTED INTO LAW.

DAIRY PRODUCTS FLOOD INTO GOVERNMENT HANDS AS PROCESSORS DEPLETE INVENTORIES PRIOR TO APRIL 1 PRICE DROP. VOLUME FIRST THREE WEEKS IN FEBRUARY DOUBLE LAST YEAR'S RATE.

★ ★ ★

In YOUR next issue!

READING COW SIGNS . . . It actually can be done, according to veteran cow-man Hap Houston. He lists many of the signs and symptoms so that you may recognize them in your own herds.

HOW TO LENGTHEN THE LIFE OF LADINO . . . By following a few simple rules involving harvesting methods and maintaining soil fertility a Connecticut agronomist shows how stands can be held for 17 years or more.

CUT A CLEAN SWATH . . . This is another in our popular machinery series. It takes a close look at the mowing machine and tells how to keep your mower well-adjusted.

HOW JUDGING CONTEST COWS PRODUCED . . . The contest is over. Winners will be announced in the May 10 issue. We know you'll want to know the identity of these cows, how they produced, and some information about their owners.

AND MANY MORE . . .

Easy TO ORDER OR RENEW!

HOARD'S DAIRYMAN
Fort Atkinson, Wisconsin

☐ New
☐ Renewal

I enclose $_____. Please send me Hoard's Dairyman for _____ years.

Name_____ R. F. D._____

P. O._____ State_____

——— SPECIALS ———

3 years $2.00 - 5 years $3.00 (Reg. price 1 year $1.00)

(CANADIAN: 1 Year—$2.00 — FOREIGN: 1 Year—$3.00)

Profit THESE 5 WAYS FROM USING STA-FRESH®

INCREASED MILK PRODUCTION

STA-FRESH treated silage is fresher, longer-lasting, more nourishing silage. It helps keep milk production high and gives you good, rich milk, even in winter. Cattle *really* clean it up.

BIGGER WEIGHT GAINS

STA-FRESH treated silage provides the answer to your need for a good, low-cost feed that beef cattle like and gain weight on. Tests show that cattle have consumed four times more silage treated with STA-FRESH than untreated silage, in free-feeding experiments.

REDUCED SILAGE SPOILAGE

Losses from silage spoilage are reduced to a *minimum* when you use STA-FRESH. You can put up good silage at higher moisture levels. With STA-FRESH, you'll never be short of fresh, green forage.

NO "SILAGE STINK"

STA-FRESH ends the contaminating "silage stink" that gets into the milk, clings to clothes, hair. STA-FRESH treated silage stays fresh, sweet-smelling . . . keeps wives happy.

ECONOMICAL

An 80-lb. bag of STA-FRESH treats 10 *tons* of grass silage. More and more farmers are learning the big benefits and increased profits that follow from using STA-FRESH.

AND HERE ARE MORE REASONS:

STA-FRESH is *easy to use*. It's a free-flowing powder that's easy to apply at the blower or field chopper. Works well in upright, trench and bunker silos. Has been used successfully on a variety of grass forage crops—orchard grass, brome grass, timothy and oats; and legume forage crops—alfalfa, ladino, birdsfoot trefoil, sweet clover and vetch. *In all these crops, it kept good silage good.* Order now. Be sure of your supply! General Chemical Division, Allied Chemical & Dye Corporation, 40 Rector Street, New York 6, N. Y.

GC Allied Chemical

STA-FRESH®

SILAGE-GRADE SODIUM BISULFITE

Keeps Silage Green, Fresh, Sweet-Smelling!

Opinions, Brickbats, Bouquets . . .

(Continued from page 290)

of which are long past the initial stage); in summarizing the records of our politicians; I find that they all recognize the same desired goal. They all start off with a contagion of enthusiasm, altruism in its purest, yet somewhere in-between become embroiled in a selfish policy of personal aggrandizement or in a selfish policy of political expediency. There is a crying need in our country today for men who are resolutely selfless to fight to the top and lead.

Mr. Teague answered one question very aptly when he stated, "there is no real surplus." How right. It's just that, through the years, the milk processors have, by repetition, branded all milk not used for fluid purposes as "surplus," thereby working the price of this milk downward and realizing a handsome profit. This action has crystallized into a sort of law which is hard for the ordinary farmer to refute. Even government officials and politicians do not care to come to grips with this malformed concept.

Implicitly, can one buy an industrial product, the first at a set regular price and the remainder at a price one-half of the regular price? If your processor bottles too much fluid milk during a given day, does he sell the balance at one-half the regular price because it is surplus? Never! We are the only fools "to be took" by the surplus "malarky" and acquiesce to a marketing policy of cutting our own throats.

No sensible businessman prices the same articles one high and the next lower and expects to sell the higher-priced article, yet we do exactly that. We allow butter, cheese, half and half, skim milk, chocolate milk, and the other variations of milk price our fluid milk out of the market it once held.

New Jersey PETER GRENTHER

"Bluff and suicide"

Those efficient dairy farmers who took part in your Round Table "'If I were Secretary of Agriculture . . .'" have in common a general feeling of frustration that government price support should be necessary.

One of them was even so proud as to say he would not need it and could operate on 60 cents a hundredweight less. I could not even though my wife and I sold 430,000 pounds of milk from 38 cows in 1957 and have no help.

If the price would drop that much the efficient farmers, not the inefficient, would quit first. **They know what they are doing.** Especially the young and efficient farmers with little capital would give up. There would remain the older farmers with sufficient capital to gamble, and those who have no hope of finding other work.

What is behind that feeling of frustration, behind that inferiority complex?

Behind it is the 19th century dream of a free market, where the law of supply and demand will regulate prices. For a modern economist this is a fool's dream like that of eternal peace. For a farmer it is a dangerous bluff and suicide.

North America is industrialized. Its economy is based on prices for automobiles, television sets, armament, etc. These prices, again, are based on the balance of power between the great companies, the trade unions, and the government.

What we farmers need more than anything else is better scientific support from agricultural economists who have not lost, during high school, university, and a comfortable city life, their farm background and their instinctive feeling for the soil and the realities of life. Economists who are not blinded by so-called mechanical laws of economy like, for instance, Karl Marx was, and who do not take it for granted that man is in the power of economic laws.

Economists who realize that even for the North American economy there is a basic difference between farming and, say, the production of lipsticks and brassieres, and who know that output per-man-unit is not the only yardstick for handling living things like soil, plants, and animals.

Until we find such scientific support, we should be glad that a responsible government anyway has had common sense enough to watch that the minority producing the basic necessities of life will not be crushed during this mad race for technical and industrial development. Sensible price politics, even if it must be government support, will, in the end, always be the cheapest item of national defense expenditure.

But, of course, if the successful launching of a Russian Sputnik and a hysterical inferiority complex on the other side could result in upsetting the carefully guarded North American farm economy, that Sputnik will be well paid for. It would destroy the one American achievement the Russians are watching with the greatest envy, the efficiency of the North American family farm.

GEORGE CARDINAL
Ontario, Canada

"Positive, forward look"

I've been going to write you for a long time and thank you for your strong, positive, forward look

(Continued on page 294)

How to be sure your pipeline milking system *won't ever grow old!*

You save money from the instant your pipeline milker is installed.

But the biggest savings are over the long run – especially when you have a pipeline that can take rough treatment day in and day out, without ever growing old and inefficient.

For this durability, ask your dealer for a PYREX pipeline. Here's why:

You could wash and sterilize a PYREX milk line fifty times a day for fifty years–yet it would never pit, rust, or lose its youthful luster and crystal-clear transparency. And you can take a section of PYREX Pipe and drive nails with it, if you've a mind to. It's *that* durable. 2½ times as strong as ordinary glass!

Durability like this is just one reason why thousands of American dairymen already have PYREX pipelines in their barns.

Here are other advantages–given *only* by PYREX Pipe:

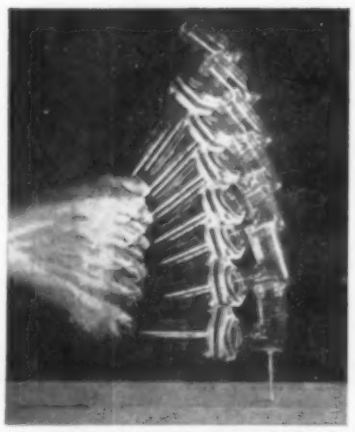
Complete visual control–You can watch the flowing milk or washing solution, and assure yourself that everything is going smoothly – or spot trouble the instant it appears.

Easiest to clean – PYREX Pipe is "smooth as glass"–because it *is* glass. No irregularities to trap bacteria or milkstone, as often found in other kinds of pipe.

Send for the booklet, "Know These Facts About PYREX Pipe." Simply write your name and address on the margin of this page, tear it out and mail to: Dairy Pipe Department, Corning Glass Works, Corning, New York, or call your local dealer representing:

DeLaval Separator Co., Farmer Feeder Co. (Chore-Boy Division), Hinman Milking Machine Co., J. C. Marlow Milking Machine Co., Rite-Way Dairy Farm Equipment Corporation, Perfection Manufacturing Corp., and Universal Milking Machine Division.

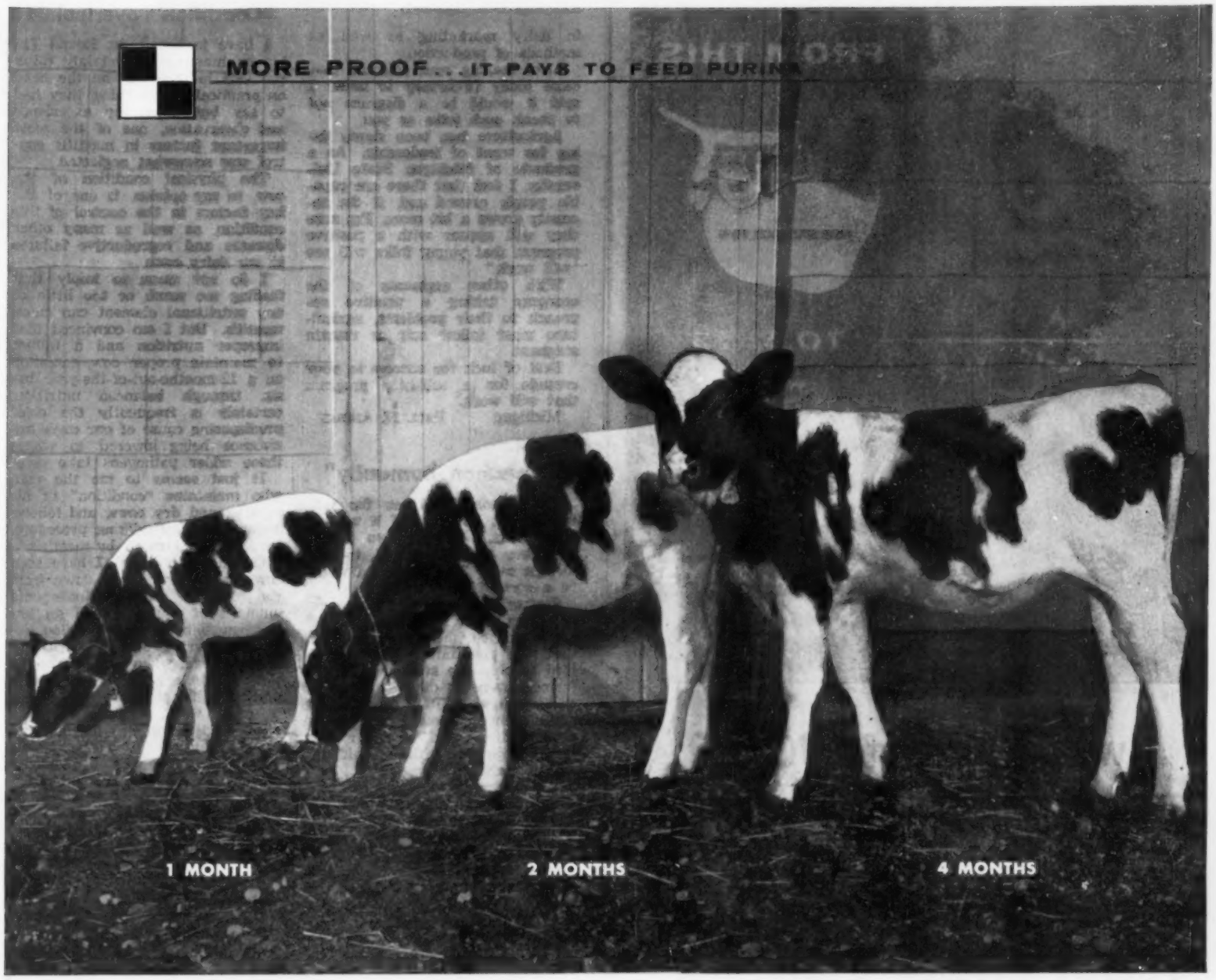
MILK PURITY-PROTECTED with PYREX® GLASS PIPE



"DOUBLE-TOUGH"–Yes, you can drive nails with it! Dairymen who are using PYREX pipelines report that breakage is no problem.

"Saves me 1½ hours a day," *reports William R. Trefry, Eaton Rapids, Mich., speaking of his* PYREX *pipeline. "Helps me maintain low bacteria count . . . makes it easy to keep my pipeline clean."*

CORNING GLASS WORKS, 27-4 Crystal Street, Corning, New York *Corning means research in Glass*



PURINA CALF STARTENA helps build

husky calves in a hurry!

Most good calves grow up... eventually. But you need husky calves in a hurry!

Not only growth, but RATE OF GROWTH is vitally important in raising cows from calfhood. Fast-growing heifers make big heifers. Big heifers breed earlier, keep right on growing and freshen months sooner than slow-poke sisters.

Often, these hurry-up calves have given enough milk to pay their back "board bill" before late-fresheners even join the milking string.

Study the growth-rate figures at the right, representing the AVERAGE growth of Calf Startena-fed heifers at Purina's Research Farm. Many Calf Startena feeders, under practical dairy farm conditions, top these figures with calf after calf... building husky calves in a hurry the Calf Startena Way!

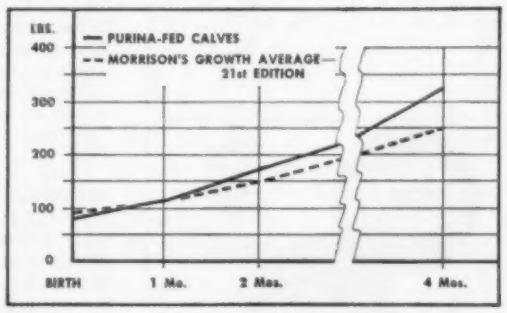
Purina Calf Startena is a complete, laboratory-designed, farm-tested calf ration, to be fed from 4 days to 4 months. Made from select-quality ingredients, it contains antibiotics, vitamins, minerals and carefully balanced proteins in the form calves use best.

Calves love it. So will you when you see how it helps calves grow!!

Calf Startena-fed calves grow up to one-third bigger in four months than calves fed in other ways.*

**Morrison's Feeds and Feeding*

AVERAGE RATE OF GROWTH
HOLSTEIN HEIFERS—PURINA RESEARCH FARM



FEED **PURINA**... YOU CAN DEPEND ON THE CHECKERBOARD FOR QUALITY - SERVICE

...with 20 lbs. of SUCKLE
and 42.3 lbs. of CALF MANNA

Calves gained over a pound a day and the cost of Calf Manna and Suckle for the first 8 weeks was only $7.56. Over 6,000 calves have been tested on the 1,225-acre Carnation Albers Research Farm to develop this complete program. EVERY CARNATION DAIRY CALF IS RAISED ON THE CALF MANNA-SUCKLE PROGRAM.

The chart below shows results of a recent feeding test – and why you should put your calves on the Carnation Albers Calf Feeding Program.

CARNATION ALBERS RESEARCH STATION CALF FEEDING TRIAL

ENDING JUNE 6, 1957–(HOLSTEINS, JERSEYS AND GUERNSEYS)

ALL FIGURES IN POUNDS

	Lot 1	Lot 2	Lot 3	Lot 4	Lot 5
Total Gain	46	46	56	43	51
Suckle	23	22.9	20.0	22.3	20.0
Calf Manna	41.3	36.7	42.3	39.9	42.9
Grain	59.2	61.8	61.7	60.4	59.6
Lbs. Feed per Lbs. Gain	2.68	2.63	2.21	2.85	2.40
8 Week Weight	133	121	130	120	125

Albers Milling Co., Dept. H-38
1016 Central St., Kansas City 5, Mo.

Please send me your 40-page booklet on how to raise better calves.

Name _____

Address or R.F.D. _____

Town _____ State _____

A DIVISION OF CARNATION COMPANY

(Continued from page 292)

in dairy marketing as well as methods of production.

After reading your editorial that came today (February 10 issue) I said it would be a disgrace not to thank such folks as you.

Agriculture has been slowly dying for want of leadership. As a graduate of Michigan State University, I feel that there are capable people around and, if the necessity grows a bit more, I'm sure they will appear with a positive program that young folks will see "will work."

With other segments of the economy taking a positive approach to their problems, agriculture must follow suit or remain stagnant.

Best of luck for success in your crusade for a self-help program that will work.

Michigan PAUL N. ANIBAL

"Common humanity"

The editorial, "Autos for butter," might be funny if it weren't so serious. Perhaps we should send our surplus abroad to buy foreign cars. The gas saved would be a sort of farm relief.

Seriously, how can we talk about surpluses when millions of people are undernourished? We are told that the government couldn't afford to ship the stuff even if the farmers were to donate it free of charge. In the CROP program the government generously "gave" the produce it wanted to get rid of, provided private citizens paid the shipping charges.

We are also told that to send these products abroad would disrupt the economic structure of the countries receiving them.

I can't see how people with no buying power form a potential market for anything, but common humanity certainly demands that they be provided for.

New York MILTON B. PORTER

Working for nothing

Don't let Benson put our dairy price down. We farmers or dairymen have lots of expense to meet in order to put out this Grade A milk and we don't want to work our heads off for nothing. We run a dairy Grade A milk deal and I know.

Why should a farmer work long hours for nothing? The city people sit on their bottoms half of the time and squawk when they have to pay a little more for milk.

Iowa AL NIEBUHR

From a "herdswoman"

In answer to Mrs. J. T.'s question "What about women as herdsmen?", I say that I'm in favor of it and I guess the farm owner I work for is, too. You see, I am a woman herdsman.

I have been here at Allen Acres, which is the home of 88 registered Guernseys (49 in milk), since June 1956.

I am 22 years old, married, and the mother of a 2-year-old son. My husband is an electrical lineman, but we hope to someday own our own herd of Guernseys. I received my training and education for my job at New Mexico A. & M.

In addition to the regular herd work, I also take the show stock to the state fair. Believe me, I love my job and every one of those 88 Guernseys.

New Mexico WILLA HANCOCK

"Condition" overlooked

I have just read the Round Table on mastitis. I certainly think the vets hit the nail on the head on practically everything they had to say but, from my experience and observation, one of the most important factors in mastitis control was somewhat neglected.

The physical condition of the cow, in my opinion, is one of the key factors in the control of this condition, as well as many other diseases and reproductive failures in our dairy cows.

I do not mean to imply that feeding too much or too little of any nutritional element can cause mastitis. But I am convinced that improper nutrition and a failure to maintain proper cow condition on a 12-months-out-of-the-year basis, through balanced nutrition, certainly is frequently the chief predisposing cause of our cows' resistance being lowered to where these udder pathogens take over.

It just seems to me the man who maintains "condition" in his milking and dry cows, and follows a good sanitary milking procedure, isn't bothered much by mastitis.

On the other hand, I have seen cows get somewhat run-down from the use of poor or inadequate amounts of roughage and an improperly balanced grain ration, especially during the dry period. I have noticed, when these cows are turned onto excellent lush pasture or the feeding program is improved in other ways, the cow may be stimulated to produce beyond her actual physical capacity. Under these conditions a high incidence of mastitis may be encountered.

Our modern dairy cow is, in every sense, a milk-making machine. If we choose to rough her through, chances are that she will burn out a bearing at an early age.

Texas C. E. SEWELL

Don't feel sorry

I would rather help milk an hour or two each night and morning than go away from home to help out. What gripes me is the woman (or women) who say they are sorry for me!

I think the dairy farm women ought to form a society for mutual understanding (or somethin'). I believe we are fully as important as any other segment of society. We have to be veterinary assistants and what-have-you.

If every dairy farm used as much milk and butter as we do, there would be no surplus. I still think the biggest reason the "don't users" do not use their own product is probably because it's not fit to eat. It's good enough to sell but not to use at home.

Indiana MRS. RICHARD CROW

"Where God placed me"

I want to agree with those women who believe that farming is a family partnership. In our family there is no division of responsibilities between the home, the dairy barn, and the fields. We enjoy working as a team.

When my husband was injured a few months ago, I moved in and took over much of his work. Other members of the family, including in-laws, pitched in, too.

God has placed me by my husband's side on this farm. With His help, we'll keep on farming —as a family—and hope to own a farm of our own someday in the not too distant future.

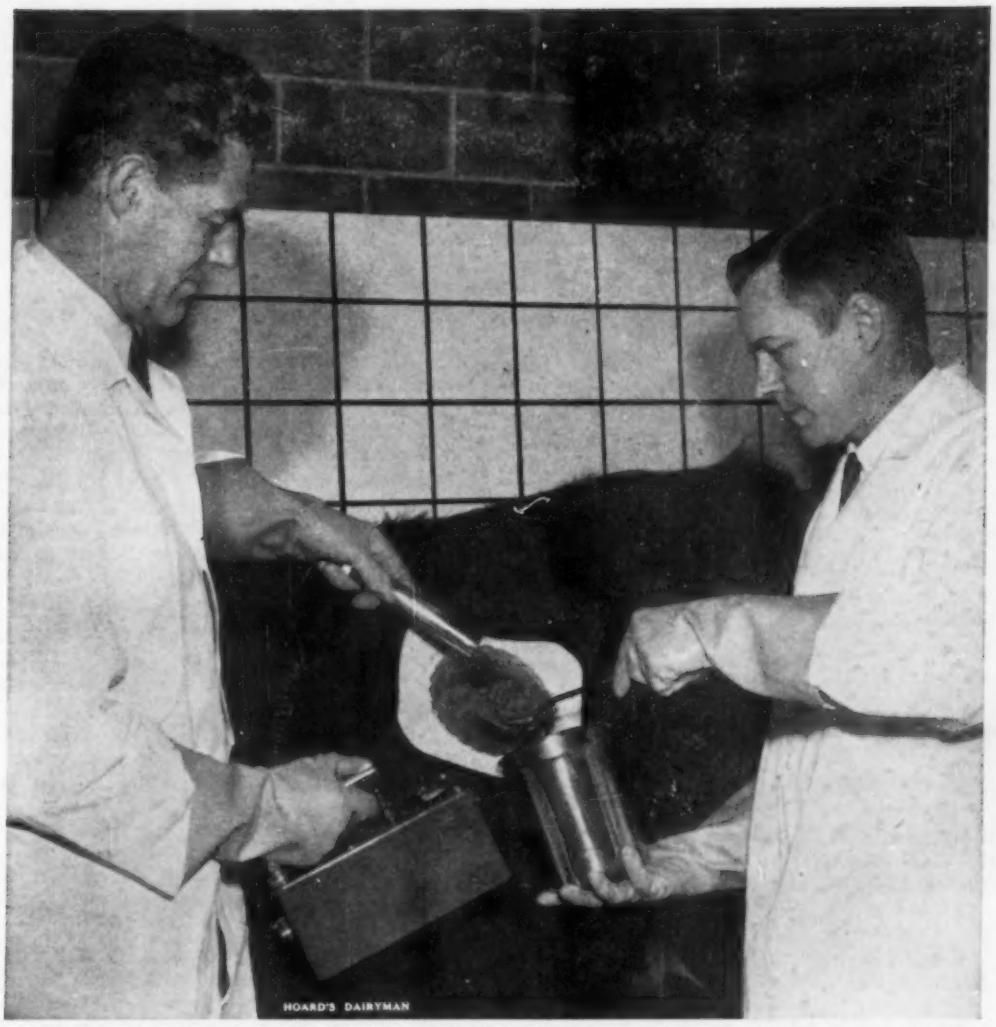
MRS. VERNON PLESCHOURT
Minnesota

HOARD'S DAIRYMAN
Founded in 1885

What we know about BLOAT

Despite many theories and treatments being advocated, more information is needed for effective control.

by N. L. Jacobson and R. S. Allen



RUMEN CONTENTS of animal with a rumen fistula are being sampled by author Jacobson, right, while author Allen, left, checks the sample for radioactivity with a Geiger counter.

BLOAT is a condition in cattle and sheep characterized by gaseous distension of the abdomen, particularly the rumen and reticulum (the first two compartments of the stomach). The factors necessary to produce this abnormality are not well understood, and in fatal cases the actual cause of death is unknown.

The production of gas (primarily carbon dioxide and methane) in the rumen or paunch is a normal condition. However, in bloat the animal is unable to remove the excess gas by belching. Thus, there is an accumulation of gas and an increased pressure in that area.

Many theories have been proposed in attempts to explain bloat. Some of them are:

1. Coarse, rough (scabrous) forages are needed in the paunch to stimulate belching. Some rations contain little or no feed of this type.
2. Due to excessive consumption of dense feed the lower end of the esophagus is submerged in rumen contents so that release of gas is difficult.
3. Substances present in the feed and/or produced in the rumen cause formation of a stable foam which interferes with belching.
4. Substances of feed or rumen origin interfere with nerve reflexes associated with belching.

Several types . . .

Bloat occurs in animals on pasture, among animals fed green chopped forage (soilage), among animals fed dry feeds and/or silage in the feed lot or barn, and in young animals of nursing age.

The most acute type of bloat usually is that which occurs on pasture and more particularly that which is produced by alfalfa, Ladino clover, and certain other legumes. These same forages also may produce bloat when fed as soilage. However, bloat is less frequent, probably because more of the stemmy portion is eaten than when animals are on pasture.

Grass pasture (such as bluegrass, brome grass, sudan grass, and orchard grass) and birdsfoot trefoil (a legume) usually do not cause bloat.

The term feed-lot bloat is sometimes used to refer to that produced on a high concentrate (grain)-low forage ration. Bloat of this type has been produced experimentally with rations composed primarily of corn, soybean meal, and a limited amount of alfalfa hay and with many similar rations. Feed-lot bloat frequently, but not always, is less acute than pasture (green forage) bloat.

Many feeds and feed combinations other than those discussed sometimes cause bloat. An example is high-quality, fine, leafy alfalfa hay. In the chronic bloater almost any type of feed will cause bloat if the animal eats it.

In many cases of bloat the contents of the rumen become very frothy or foamy and gases which might normally escape are trapped. This froth is particularly characteristic of pasture bloat. However, a somewhat similar froth (although heavier and more viscous) is characteristic of much of the feed-lot bloat.

Even in frothy bloat there usually is some free gas in the upper part of the rumen. It is important to remember this in treating acute bloat because temporary relief sometimes can be obtained by removing the free gas.

Some cattle may not have a foamy bloat but rather a type which is characterized by free gas. This is typical of many chronic bloaters. In some cases at least, chronic bloating is due to an anatomical abnormality causing physical obstruction or interfering with the belching mechanism in some other manner. In such animals the gas often can be easily removed by stomach tube, but recurrence of bloat is difficult to prevent. Some cases of feed-lot bloat may exhibit a large amount of free gas, but apparently the animal is unable to remove it in a normal manner.

Some animals bloat more than others. However, in the highly bloat-provocative pasture a large percentage of the animals (perhaps all) may be bloated to some extent. The incidence of feed-lot bloat also varies greatly among herds and among animals within a herd.

Management helps . . .

Even though there is promise of more effective bloat control measures, the pasture management practices listed which have been helpful in the past should not be ignored:

1. Using mixtures of legumes and grasses.

Although pasture mixtures are helpful, they do not provide complete insurance against bloat. Some animals may tend to eat mostly legumes in spite of the mixture. Also, regrowth of the grasses usually is much less than for legumes.

2. Withholding animals from pasture during the most likely bloat-producing stage of plant growth.

Early, lush growth is the most likely bloat producer. On the other hand, however, alfalfa in full bloom has been known to produce bloat.

3. Providing dry feed on pasture.

Dry roughage, particularly rather coarse hay such as sudan, will reduce incidence of bloat if the animals eat a considerable amount of it before going on the pasture (or if the hay is available in racks in the pasture). High-quality legume hay is much less effective in preventing bloat.

In feed-lot bloat, the use of a considerable amount of coarse forage also will help, but this practice may seriously interfere with the feeding program.

Oils can be effective . . .

Recent work in New Zealand and in the United States shows that certain oils are effective in reducing bloat, presumably by reducing the amount of foam in the rumen. The work in New Zealand *(Turn to page 318)*

The authors are members of the Dairy Husbandry Department at Iowa State College.

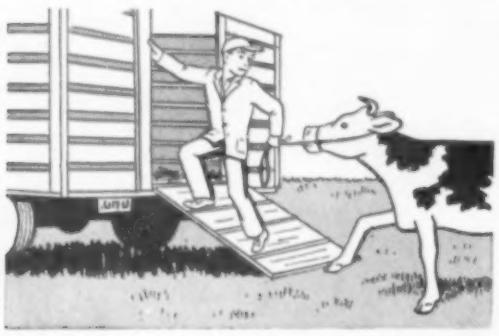
Farm Flashes . . . .

Seasonal reminders and research notes for the dairyman

SEND SLACKERS TO SLAUGHTER

Culling out unprofitable cows is always good business, but right now it is especially true for dairymen short of high-quality roughages.

Bill Northern, West Virginia extension dairyman, says that while there is no magic formula for culling, there are two simple questions to ask yourself:



1. Would it pay me to replace that cow with a higher producer?

2. Would it pay me to remove that cow without replacing her?

A cow will produce about one-half of her total lactation during the first four months. Should you want to keep a cow at the "break even" point, and the break even point is 300 pounds of butterfat, the cow must produce 150 pounds during the first 120 days of her lactation. If she does not, it is a pretty good indication that she will not reach the break even point.

This figure is merely used as an example; choose the one that best suits your herd.

CORN BORER COSTLY IN '57

According to estimates compiled by the U. S. Department of Agriculture, the European corn borer destroyed almost 181 million bushels of corn in 1957, worth $168,841,000.

This loss amounts to about 6 per cent (1 corn row in every 17) of the total national grain-corn crop which is estimated at more than 3 billion bushels. It is nearly 85 per cent higher than the 98-million-bushel loss charged up to the insect in 1956 and the third highest loss in the last nine years.

Corn in Iowa, Nebraska, Missouri, South Dakota, and Illinois suffered most from borer damage. Iowa lost more than 102 million bushels of its 1957 crop; Nebraska, 19 million; Missouri and South Dakota, more than 16 million; and Illinois, almost 11 million.

The European corn borer entered this country on imported broomcorn before 1917 and has since spread into most of our main corn-growing areas.

PASTURE CROP VARIES IN VALUE

A three-year survey just completed in Wisconsin reveals that the crop farmers get from an acre of pasture varies, farm to farm, from $6 to $100 a year.

George Werner, Wisconsin dairy specialist, says that many "wild" pastures in the state produce as little as 300 pounds of useful feed per acre. In total nutrients this is the same as 600 pounds of hay or 13 bushels of oats or 6 bushels of ear corn.

On the other end of the scale, the best pastures produced up to 5,000 pounds of useful feed. This is equivalent to 5 tons of fairly good hay, 217 bushels of oats, or 100 bushels of ear corn.

Some 630 pastures were surveyed. The average of all of them was about 2,300 pounds of useful feed per acre. This includes some of the poorest and some of the best. The average production value was $46.

Werner offers this formula for pasture:

1. Start with a good crop, with legumes in the mixture.

2. Hold waste to a minimum by following a controlled, strip grazing program.

3. Naturally, good pastures need plenty of moisture. This may mean using irrigation.

4. Finally, a 150-day grazing period is a goal to work toward.

INSECTICIDES INCREASE PLANT STAND

Applying soil insecticides to corn fields before planting increased plant stands an average of 7 per cent in Illinois tests. The insecticides control pests that feed on the seed and underground portions of the corn plants. These pests include wireworms, rootworms, and grubs that cause poor germination, lodging, and reduced yields.

Aldrin or heptachlor are recommended by Steve Moore, Illinois entomologist. They can either be broadcast or applied in the row as a band treatment.

If broadcast, it requires 1½ pounds of insecticide per acre. Disk it into the soil immediately. The band treatment requires only 1 pound of actual chemical per acre. Apply at planting time in the starter fertilizer or as a spray behind the planter shoe.

The effects of aldrin and heptachlor also carry over from one year to the next. In fact, the chance of realizing a profit from treatment is greater on the second crop of corn than on the first.

During the past 4 years, 66 per cent of several hundred fields tested showed a profit over and above cost of treatment. Chances of profit increase when insecticides are applied to sod land, bottom land, and other land having wireworm infestations.

If a soil insecticide is not applied, Moore recommends using treated seed. However, seed treatment is not necessary if an insecticide is applied.

GROW YOUR OWN REPLACEMENTS

A study made by an agricultural college reveals that dairymen who raise their own replacements generally make more money than those who buy their replacements.

In the 763 farms studied, home-raised replacements stayed in the milking herd an average of 50 per cent longer than did heifers brought from the outside.

There also is less disease hazard among home-grown replacements. The study showed that four times as many cows had to be sold because of disease and breeding troubles from herds where replacements were bought than where they were raised.

PRUNE EVERGREENS AND SHRUBS NOW

Most ornamental evergreen trees and shrubs can be pruned now during the dormant season. Mild days during March are ideal for this pruning, which should be completed by April 1.

The feathery types of evergreens such as hemlock, juniper, and arbor vitae should be clipped lightly into the previous season's growth. A sickle or sharp knife used like a sickle will help to produce a natural effect when pruning these plants. Most of the evergreen growth is on the outside of these trees and shrubs, so avoid heavy pruning.

A Rutgers University horticulturist says that yew and holly are best pruned just before Christmas, but may be pruned any time before growth starts. Spruce trees have several side buds on last year's growth and long branches may be cut back to one of these buds to produce a bushier tree.

Pines are an exception to the rule and should be pruned about mid-May. The young "candles" of new growth may be cut back about half way at that time and will produce new buds at the cuts. Pines should not be cut back into hard wood.

SEEDING DEPTH INFLUENCES STAND

While the depth varies somewhat by soil type and the grass or legume being put in, generally a depth of ½ inch is recommended.

Experiments with alfalfa in Illinois have shown a 64 per cent stand when seeded at a depth of ½ inch, 53 per cent at 1 inch, and 45 per cent at 1½ inches. Brome stands, which were 78 per cent when covered ½ inch, were reduced to 69 and 51 per cent at the deeper seedings. White clover and Ladino stands ranged from 47 down to only 2 per cent for the ½-to 1½-inch seeding depths.

ORDER GRASSES, LEGUMES SOON

Current reports indicate grass seed will be in plentiful supply this season. Last year's production of Sudan grass, brome grass, orchard grass, and Merion bluegrass seed was the largest on record.

Legume seed may be a little tight, but still ample this year. A Michigan State University crops specialist says that production was down in the north and south central areas, but larger in the mountain and Pacific states where fields were irrigated.

Seed production of Ladino clover was down 40 per cent from last year; sweet clover down 16 per cent; red clover off 8 per cent; and alfalfa down 6 per cent. Alsike and white clover were up a little from a year ago.

It would be well to order the varieties you want as soon as possible or you may have to settle for something else.

Cold lye best for rubber

Inflations last longer with new treatment. Prevents swelling by extracting fat. Destroys bacteria in pores of rubber.

by J. M. Jensen

THE 5 per cent cold lye solution treatment for milker rubber is proving to be the most effective means of caring for these parts. The treatment:

1. Extracts fat absorbed during milking.
2. Destroys bacteria which are harbored in pores of the rubber.
3. Causes rubber to retain its shape and tension.
4. Keeps the rubber clean in appearance and odor.
5. Is especially effective in extending the life of rubber parts.

Aside from the benefits to the milker rubber, the treatment is inexpensive. The cost of a four-gallon solution is about the price of two cans of lye, with a small additional cost when hard water is used and a softening agent is added. The solution, however, may be used continuously for a period of approximately three months.

Milker inflations and milk hoses are stored continuously in a 5 per cent lye solution during seven-day periods. With two sets of rubber provided for each milker unit, the rubber parts are alternated weekly.

The strong lye solution causes soap to form on the surface of the rubber. Soap is densest on gum rubber inflations, especially on the part of the inflation which grips the teats and where flexing action occurs. When the solution is of 5 per cent strength, the soap adheres to the rubber and is removed from the solution along with the rubber parts. For this reason the lye solution is kept clean and may be used repeatedly. Lower concentration solutions let the soap float free.

Solutions should be renewed when they appear soiled. Normally they may be used two to three months.

Equipment should be used that will permit the removal of the rubber parts from the lye solution with the least amount of disturbance to the soap formation. This equipment should close tightly so as to prevent evaporation and entrance of dirt or extraneous matter. The equipment should be made of materials that are not attacked by the solution.

Safety should be considered. A lock-on cover should be used, and equipment should be equipped with bails or handles to facilitate handling. Earthenware crocks are not suitable for strong lye. The enamel glaze gradually dissolves in the lye and lets the lye seep through.

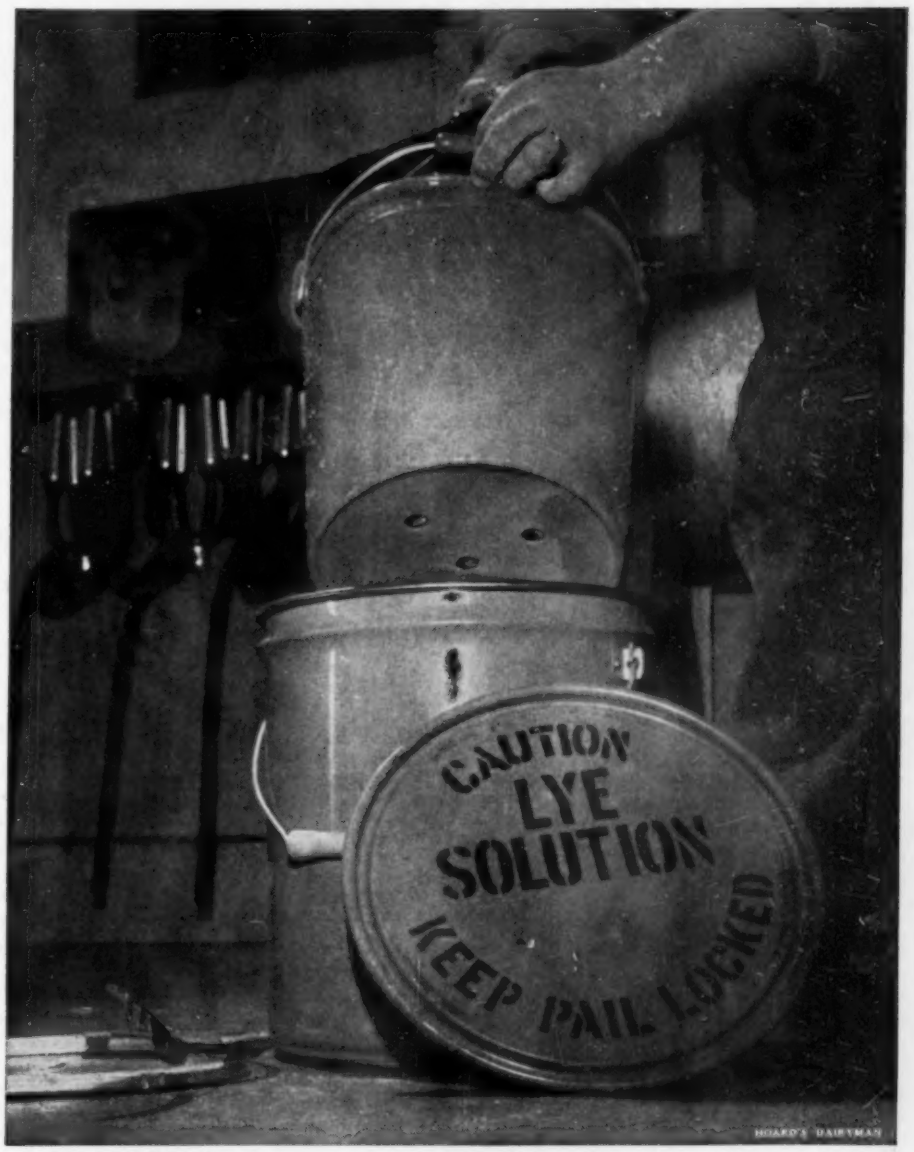
Ideal, low-cost equipment for strong cold lye solution treatment is available in the form of a lye-resistant steel pail with an inner polyethylene pail, which is perforated to permit entry and escape of lye solution.

After the rubber is removed from the lye solution, the soap and lye are rinsed away with running hot water from a tap or hose. Teat cups should be scrubbed clean of soap on both inside and outside.

Unless soft water is used for preparing the lye solution, a white mineral deposit will likely form on the inner side of inflations and rubber tubing. Consequently, the rubber should be placed in a mild organic acid solution for a few hours. The usual milkstone removing solutions will remove mineral deposits.

There are several kinds of materials from which milker inflations and tubing are made. Milker "rubber" as made today is made of gum rubber, neoprene, and Buna materials. Gum rubber absorbs a great deal more fat than the neoprene and Buna materials. Therefore, the same strength of lye is not needed when gum, neoprene, and Buna inflations are used. *(Turn to page 312)*

The author is associate professor of dairy manufactures, Michigan State University.



SAFE EQUIPMENT for new lye treatment. Steel pail is lye resistant and has safety lock-on cover. Inner polyethylene pail is perforated so the lye solution can drain. Earthenware crocks are not suitable; enamel dissolves causing lye seepage.

COMPARE THESE LINERS in use 6 months. After each 7 days use, left liners of each pair were "rested" dry for 7 days, while right liners were "rested" in 5 per cent cold lye solution. Those in cold lye retained shape, size, and cleanliness.

TIPPING SIDEWAYS with a heavy load in power loader extended to its full height. This puts the center of gravity above tractor, causing it to tip easily.

TIPPING BACKWARDS may occur suddenly on slopes. Use care in handling clutch when going uphill. Avoid steep slopes.

Your tractor can be a bronco

Excess speed, a high center of gravity, or a quick clutch can roll tons of steel onto you. Here are Minnesota accident study results.

by D. W. Bates

FARMER killed when tractor overturns . . ." "Farm hand killed in tractor-automobile collision . . ." "Small child crushed beneath farm tractor . . ." These headlines appear in newspapers all over the country with alarming frequency.

Medical science can protect us against some of the most dreaded diseases with a shot or two from a hypodermic needle, but there is no shot it can give to prevent "tractor sickness." Protection from that is strictly up to the operator of the machine.

More farm people die each year in Minnesota as the result of tractor accidents than die from polio. This is undoubtedly true in other agricultural states.

A study of 69 tractor fatalities in the state of Minnesota lists the following contributing causes:

1. Excessive speed resulting in loss of control and tipping.
2. Hitching above the draw bar.
3. Careless clutching of tractor.
4. No lights after dark.
5. Careless fueling of tractor.
6. Extra riders on tractor.
7. Children playing around tractor.
8. Operator not physically fit.

Tractors are designed to pull heavy loads at relatively low speeds. They are not designed to make sharp turns on rough or even level ground at high speeds. Approximately two-thirds of the total weight of a tractor is supported on the rear wheels and one-third on the front wheels. On a tricycle-type tractor the center of gravity is at about the height of the rear axle.

In a high-speed turn, the momentum of the tractor acting from the center of gravity continues to act in a straight line forward for a short time. If ground conditions are such that the rear wheels do not slide, this force may be sufficient to overcome the force of gravity acting on the tractor and tipping will occur.

It is seldom realized how little it takes to overturn a tractor traveling at high speed. To demonstrate this, a tricycle-type tractor was fitted with a protective framework so that it could be repeatedly overturned without damage. Remote controls were provided so that the tractor could be operated by a man standing some distance away from it.

The writer participated in a number of demonstrations in which this tractor was used.

One of the procedures was to put the tractor in road gear and drive it in a circle about 30 feet in diameter at full throttle. A 4- x 4-inch block was then thrown under the inside rear wheel. This small obstruction caused the tractor to tip over on its side without fail.

The tractor also was tipped over with equal ease by driving it in the same manner and setting the brake on the inside wheel.

One of the comments most frequently made by the spectators was, "I didn't know a tractor would tip over **that** easily."

The skeptic might say, however, that nobody in his right mind would actually drive a tractor like that. This is undoubtedly true, yet the tractor is sometimes used to go after the cows, or for various errands about the farm.

Frequently these trips are made in road gear at full, or nearly full, throttle over ground where there may be obstructions much larger than a 4x4, such as rocks, ditches, dead furrows, and the like. Also, it is rather common practice to apply the inside brake to make a sharp turn.

Usually there is no warning of tipping. If the right conditions present themselves, tipping is almost instantaneous. The tractor is, of course, most prone to sidewise tipping when the wheels are set in close.

This demonstration tractor also was rigged so that the effect of proper hitching and improper hitching on backward tipping could be shown.

Hitch to drawbar . . .

A chain was hitched between the drawbar of the demonstration tractor and the drawbar of a heavier tractor which acted as a "dead man." With the demonstration tractor in low gear and at full throttle, nothing happened other than that the tractor wheels began to spin.

The chain then was disconnected from the drawbar of the demonstration tractor and hitched to the axle. With this arrangement it took only a moderate amount of power to tip the tractor over backwards, much to the surprise of the spectators.

The skeptic might say, "So what? When I feel the front wheels start to lift off the ground, I'll stop the tractor." The sad part about this is that once the front wheels leave the ground there may be enough momentum to carry the tractor on over regardless of what the operator does, if the hitch is above the drawbar.

Of the 69 fatalities in the study, 40 were the result of tractor tipping; 30 tipped sideways, 9 tipped backwards and 1 tipped forward.

Letting the clutch out with a jerk can be a contributing cause to backward tipping, especially if the tractor is pulling up hill. It also can cause the operator to be thrown from the tractor.

Operate from seat . . .

Don't try to operate a tractor from any place other than from the tractor seat. This is of particular importance when hitching the tractor to another machine or backing it into a tight place. If some slip is made when the operator is on the seat, only the machinery will be damaged.

When going down a steep hill, do not attempt to disengage the clutch and "coast." Tractor brakes do not have great stopping power, and speed sufficient to cause the operator to lose control may develop. The braking power of the engine must be relied on to a great extent.

Twenty-seven of the 69 fatalities took place on the highway. Twenty of these were tractor operators and seven were drivers of automobiles who collided with tractors. A number of these fatalities took place after dark and were attributed to the fact that the tractors involved had insufficient lights or no lights.

Make sure that any tractor used on the highway after dark is *(Turn to page 333)*

The author is an extension agricultural engineer at the University of Minnesota.

10 rules for establishing ALFALFA

Good yields of high-protein alfalfa hay are possible over a period of six years, if these recommendations are followed.

by J. F. Davis

THE most important factor in successful alfalfa production is the establishment of a good stand. How can this be done?

1. **Plant on drained soil.** Alfalfa cannot stand wet feet. This may mean installing tile drains, especially on level fields of heavier soils which include the loams, silt loams, and clay loams. Adequate outlets are needed. Extending a tile line to a low, wet part of a field can pay big dividends in higher yields of better quality legume forage. Furthermore, the alfalfa will last longer where drainage is adequate.

2. **Add lime needed.** Whether the soil needs lime depends on the acidity of the soil. The degree of acidity is expressed as the pH. Alfalfa has a pH preference of 6.5 to 7.8 — and is a heavy user of lime. A 3-ton crop of alfalfa alone can remove the equivalent of 200 pounds of lime per acre. Lime should be applied to bring the soil within this range preferably to pH 6.8 to 7.0.

The actual quantities of lime needed depend on the soil texture, organic matter content, and kind of lime used. Sandy soils usually require less lime to bring them to the desired pH than do finer-textured soils having the same degree of acidity. The amount of lime required to change the pH of a strongly acid organic soil is much greater than for mineral soils. The differences are due largely to the much greater buffer capacities as determined by the colloidal material, both organic and inorganic. The following recommendations are based on average soil conditions. Tons of limestone meal, or its equivalent, recommended to bring the soil reaction (pH) of the plowed layer of acid soils into the range most favorable to the growing of alfalfa and the clovers is shown in the following table:

Soil texture	Tons of limestone per acre			
	Very strongly acid (pH 4.3-5.0)	Strongly acid (pH 5.1-5.5)	Medium acid (pH 5.6-6.1)	Slightly acid (pH 6.2-6.7)
Sands and loamy sands	3½-4½	2½-3½	1½-2½*	1 -1½*
Sandy loams and loams	4½-5½	3½-4½	2½-3½	1 -2
Silt and clay loams	5½-7	4½-5½	3 -4½	1½-2½
Muck and peat	2 -5	none	none	none

*In case the organic matter content is high and the soil dark-colored, these lime application rates should be increased by from 50 to 100 per cent.

Where the lime requirement is greater than 2 tons, it is better to split the application, applying one-half the lime before plowing and the remainder after.

The actual quantities of lime needed may vary somewhat from these figures for any particular textural group, because of variations in content of clay or organic matter within the group. To be safe, lime should be applied and worked into the soil at least six months prior to seeding alfalfa.

3. **Apply enough food.** A ton of average alfalfa hay contains about 10 pounds of phosphoric acid, 40 pounds of potash, 28 pounds of calcium, and 7 pounds of magnesium. A 3-ton crop would then remove as much phosphoric acid as contained in 150 pounds of 0-20-20 fertilizer and as much potash as would be contained in 600 pounds of the same fertilizer.

Fertilizer recommendations should be based on results of field experiments, the type of soil, and the amount of plant food in the soil as indicated by a soil test. This means test your soil.

Soils vary in their ability to supply plant nutrients to a crop. For Michigan conditions, the following quantities of phosphate and potash are suggested for an alfalfa seeding.

Soil texture	Pounds P_2O_5 to apply per acre			Pounds potash to apply per acre		
	Phosphorus soil test			Potassium soil test		
	Low	Medium	High	Low	Medium	High
Upland loams, silt loams, and clay loams	100	70	50	50	35	12.5
Low land loams, silt loams, and clay loams	80	60	40	40	30	10
Light loams and sandy loams	80	60	40	80	60	40
Loamy sands and sandy soils	50	35	25	150	105	75

Alfalfa is a "luxury" consumer of potash if an excess of this element is available over the amount required for the highest yield. In general, if the alfalfa has 1½ per cent of potassium in the plant, no further increase in yield will take place, even though the alfalfa continues to build up the amount of potassium in its stems and leaves. From 15 to 20 pounds of nitrogen per acre, in addition to the phosphate and potash, may be beneficial on some farms.

Band seed, if possible. This is a new method of establishing better stands of alfalfa seeded alone or with a companion crop. The alfalfa seed is dropped in a narrow band about 12 inches behind the outlet in the drill shoe. The seed falls on the surface of the soil directly over the fertilizer band, and the grain drilled from 1 to 2½ inches deep. The drill-disk furrow is closed before the seed falls on the ground. The seeding operation should be followed by cultipacking to insure good coverage of the seed. This method is not designed for seeding in winter wheat. The conventional grain drill with the alfalfa seed falling through the fertilizer-grain outlet into the disk furrow is more satisfactory for establishing these seedings. Advantages of band seeding are:

Stronger stands with approximately one-fifth less seed required.

Quicker response to applied phosphorus which helps the plants withstand drought, insects, or weeds. *(Turn to page 330)*

The author is professor of soil science, Michigan State University.

WELL-ESTABLISHED alfalfa on this North Carolina farm will produce tons of cheap protein. Keep hilly land covered with alfalfa.

ALFALFA SEEDING between 80-inch corn rows. This was seeded about mid-June after cultivation. It allows hay back to hay in one year.

BAND SEEDER attachment for a grain drill. This is easy to make by attaching garden hose firmly to strap irons bolted to the drill shoes.

Your stake in imports

Fat and milk products imported into the U. S. can cause prices to fall or make our price support program so costly it could collapse.

by Otie M. Reed

WHY are spokesmen for dairy farmers up in arms over imports of dairy products? After all, the quantities involved are only a very small percentage compared to our production in the United States.

The reason is simple and direct. Each year approximately a billion pounds of butter and almost as much cheese move in foreign commerce. Other dairy products move, too. Because of our high standards of living and high labor costs, our dairy prices are, comparatively, quite high. Other dairy nations, with their lower costs, can produce the products, pay shipping charges, and sell their dairy products far below the prices received in the United States.

Compared to the normal markets in the United Kingdom and other European countries, our price, in recent years, would net foreign producers from 6 to 15 cents more a pound on butter.

Obviously, with this price disparity, the U. S. market is extremely attractive to foreign producers. If they were allowed unrestricted entry, the U. S. government, under our price support program, would either have to purchase the imports or purchase an equivalent amount of our current production to maintain the price support level to American dairy farmers.

This, in itself, would not be the end either. Our government would eventually have to dispose of these commodities at a great loss. It is easy to see that our price support program would not last very long under such circumstances.

How controls are imposed . . .

To safeguard our dairy prices, and to prevent our government having to support the entire world market, import controls have been imposed. Two laws are used. They are: The Tariff Act of 1930 and Section 22 of the Agricultural Adjustment Act.

The Tariff Act of 1930 established rates of duty on imports of specific dairy products. These, subsequently, have been modified by operations under the Trade Agreements Act.

Section 22 of the Agricultural Adjustment Act gives the President power to establish quota controls on imports or higher fees than those under the Tariff Act.

During the 1930's Section 22 was enacted because large imports at that time would have disrupted U. S. efforts to improve prices and income of farmers. It is apparent, then, that the duties imposed by the Tariff Act discourage large volumes of imports should farm prices in this country be raised above world price levels plus duties and shipping costs.

Under Section 22, however, the procedure for establishing import controls is long, complicated, and quite uncertain in its application.

To invoke the powers conferred on the President, it is first necessary for the Secretary of Agriculture to determine that imports threaten to impair and render ineffective price support programs of the U. S. Department of Agriculture. If he makes such a finding, he must advise the President. Should the President agree, he instructs the Tariff Commission to make an investigation and report its results and recommendations. The President may then agree with the Tariff Commission or modify its recommendations, or take no action, as he sees fit.

The procedure is not only long and involved, but often results in a direct clash between U.S.D.A., the industry involved, and the U. S. Department of State. The latter agency does not approve of Section 22 because it conflicts with its operations under the Trade Agreements Act.

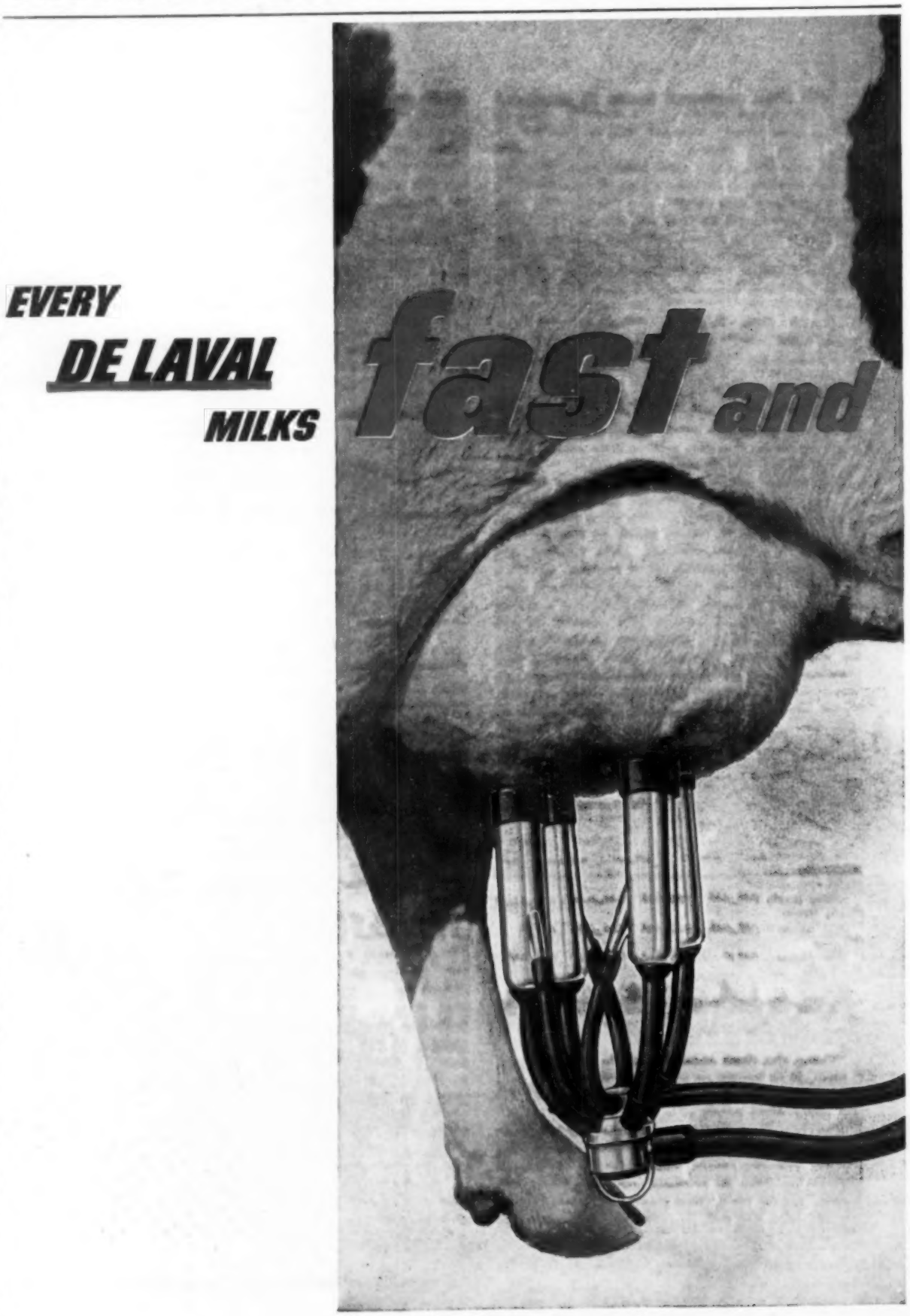
While the President may take immediate action to establish quotas under Section 22, he has not used this provision since the act was passed years ago.

Room for evasion . . .

Even after the long and involved procedure is carried out and quotas are placed in effect, there is no guarantee that they will not be subject to widespread evasion. In 1953, when quotas were established on butter, no quota was placed on butter oil.

When importers discovered this loophole, they started to import butter oil in large quantities. It took from August 1956, until April 1957, to carry out the procedure and establish quotas on butter oil, during which period several mil-

The author is Washington representative, National Creameries Association.



lion pounds entered this country.

The ink was hardly dry on the President's proclamation establishing a quota on butter oil when a commodity called Exylone began to arrive in large quantities. This commodity contained about 77 per cent butterfat, 15 per cent water, 8 per cent sugar, and a trace of flavoring.

Since it was not butter, butter oil, or a butter substitute as such commodities are ordinarily defined and used, the butter oil quota did not apply. Another hearing before the Tariff Commission was necessary, and on August 7 the President, by proclamation, stopped the importation of dairy commodities having more than 45 per cent fat and not already subject to quota.

Even though we now have import quotas on most dairy products, there is absolutely no guarantee that such quotas will be maintained. They can be changed at the whim of the executive branch, or administered in such fashion as to tend to make them ineffective.

New bill introduced . . .

To correct this basically unsound position, Representative Byrnes (R-Wisconsin) introduced bill HR-7862 in the recent Congress. This bill, if it becomes law, will close the loopholes now in Section 22. It would accomplish the following:

1. State the policy of Congress to be that of controlling imports to the extent necessary to prevent imports from rendering price support and other programs of the Department of Agriculture ineffective.

2. Immediately establish quotas on any commodity that is the subject of a price support or other program operation. The quotas would be the five-year-average imports preceding the beginning of the year involved in the program. They would remain in effect as long as prices received by the producers of the commodity were 90 per cent or less of parity. They would be removed when prices to producers reached 90 per cent or more of parity and remained there for six consecutive months.

3. In the case of commodities not previously imported (such as butter oil), new commodities (such as Exylone), and commodities having natural characteristics not possessed by U. S. commodities, the Secretary of Agriculture is required to determine whether such commodities are competitive with or can be substituted for our own commodities. If he found they were competitive with or could be substituted for our commodities, import quotas would be applied.

4. Inasmuch as there are some quotas now in effect under Section 22 which would be smaller than the five-year-average imports, the bill provides that no quota now in effect under Section 22 shall be increased by application of the bill.

It is possible that in many instances it will be necessary to limit imports more than the five-year-average. To take care of this situation, the bill continues in effect the current Section 22, which would be used in case quotas lower than the five-year-average imports were needed.

If this bill is passed, we think we will have a very strong import control system which will protect the price support program of the dairy farmer, as well as other agricultural producers.

State Department opposed . . .

Getting this bill passed will be a hard battle. The State Department is already on record in opposition to the bill. Many elements in our national economy which wish more imports (mainly so that dollars will be available to pay for the commodities they export) will be opposed.

On the other hand, we have a great deal of support. National Creameries Association and its affiliated state associations, National Cheese Institute, American Butter Institute, American Dry Milk Institute, Evaporated Milk Association, and the Dairy Industry Committee have not only strongly supported the bill but have made significant contributions to its current form.

We fully expect to secure the support of other farm commodity organizations. During the period before the Congress returned, all-out efforts were made to secure such support.

Midwest dairy states congressmen are rallying in support of the bill on a nonpartisan basis. Identical or companion bills to HR-7862 have been introduced by Democrat Representatives Johnson (Wisconsin), Knutson and Marshall (Minnesota); and long-term Republican Representatives Hoeven, LeCompte, and Talle (Iowa).

This is indicative of strength. It is expected that many more congressmen from these and other agricultural states will join in support of the bill when requested.

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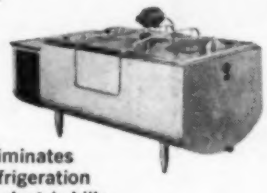

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Gestation fluids . . . why and how they occur

During pregnancy, excess fluid may collect in the uterus. Surgery, if done early, may be successful.

by E. A. Woelffer, D.V.M.

SHORTLY after a cow becomes pregnant a tiny, round, organized group of cells, the amniotic vesicle (which later becomes the fetus), establishes itself in the uterus (womb). Enveloping tissue (the fetal membranes) develops simultaneously. This tissue is recognized later as the fetal membranes (afterbirth) observed at time of calving.

The fetal membranes, or sacs, accumulate a yellowish physiological fluid, principally for protection of the fetus. These fluids increase in volume as the fetus and membranes grow and develop.

When a cow is pregnant about 50 days, there is less than a half pint of fluid present. At 100 days, there is about a quart. At normal calving, seven to nine quarts usually are present.

Occasionally the abdomen of a cow late in pregnancy will be abnormally distended. The great size may be the result of carrying twins. It also may indicate accumulated fluid in the abdominal cavity (ascites), or an excessive amount of fluid in the uterus. It is the excessive accumulation of fluid (dropsy) in the uterus which we will discuss.

When rupture of the prepubic tendon occurs there is a fallen appearance of the abdomen which might be confused with dropsy. Rupture of the external abdominal (mammary) vein, with its subsequent swelling or edema, also may be confused with the presence of fluids within the abdominal cavity. Since edema of the subcutaneous tissue usually is confined to one side of the abdomen, this often distinguishes it from other conditions.

Accumulation of fluid in the fetal membranes is probably the most common form of dropsy in cows. Dropsy of the fetus, however, is not an uncommon abnormality. There are various forms of dropsy in the membranes, as well as in the abnormal fetus.

Dropsy is due basically to a circulatory disturbance, probably associated with obstruction of the venous supply of the fetal membranes or fetus. Predisposing factors are heredity and uterine disease.

The symptoms of dropsy of the fetal membrane usually are not observed until during the latter stages of pregnancy. The fluid in the abnormal reproductive tract may be 5 to 10 times its normal volume.

At first, twins often are suspected. As the condition advances, the cow finds it more and more difficult to walk or rise.

The cow's appetite lessens and there is loss of flesh. Often there is pressure on the diaphragm which interferes with normal breathing. Through rectal palpation, veterinarians frequently are able to diagnose the condition. This is based upon the location of the fetus and the presence or absence of cotyledons; the condition of the uterine wall and its relationship to other tissues and organs.

Occasionally a cow with an overabundance of fluid in the membranes will calve unassisted and the cow and the calf do relatively well. In most instances, however, this is not the case, particularly if the fetus is thickened with edemic tissue. The cow is generally weak and the muscles of the uterus lack tone. Little effort is made to expel the calf.

Treatment . . .

Surgical removal is beset with difficulties but in some cases, particularly when the Caesarean section is made before the cow goes down or is too weak to rally, both the cow and the calf may be saved.

Some of the difficulties encountered are shock, which is usually fatal, or subsequent severe metritis or septicemia. Fluid in the fetal membranes is seen mostly in dairy cows, but now and then occurs in beef animals.

About a year ago we successfully operated on a female of a beef breed. The cow was due to freshen within a week. She was barely able to stand even though there was only a moderate accumulation of fluid.

Incidentally, the heifer stood high in the heifer calf class at the recent International Livestock Show in Chicago. The cow is looking and doing well but, to date, we haven't been able to get her pregnant. Such subsequent difficulties are to be expected in the majority of females which survive such events.

Pesticide banned as spray for cows

Commissioner George P. Larrick of the Food and Drug Administration ruled against the application of pesticide methoxychlor to dairy cows when method used leaves residue of the poison in the milk.

Larrick's action, which has the effect of outlawing such methods of application to keep cows free from flies, was in the form of a regulation setting a zero tolerance for methoxychlor in milk.

A committee appointed by the National Academy of Sciences found that the information on safety was inadequate to justify establishment of the tolerance.

The committee recommended that, in view of the importance of milk in the diet, a greater margin of safety must be established in fixing such a tolerance than would be the case for any other food.

Editor's Note: Methoxychlor can, however, be applied as a powder on milking cows, but not as a spray. One tablespoonful (about 10 grams) of 50 per cent methoxychlor powder is recommended for each animal. It should be sprinkled over the back of each cow and rubbed lightly into the hair.

This treatment will provide control of horn flies for about three weeks. Methoxychlor dust treatments to the animal will not control lice, other biting flies, house flies, or ticks.

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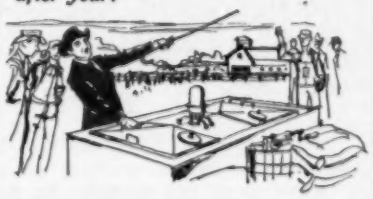

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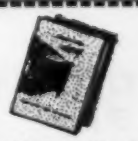

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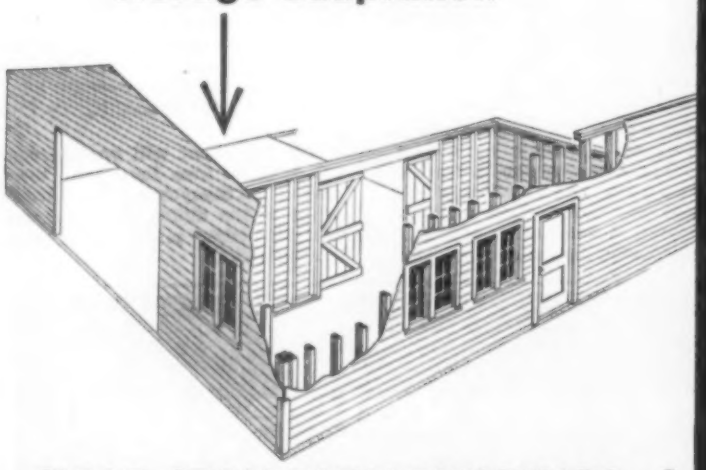

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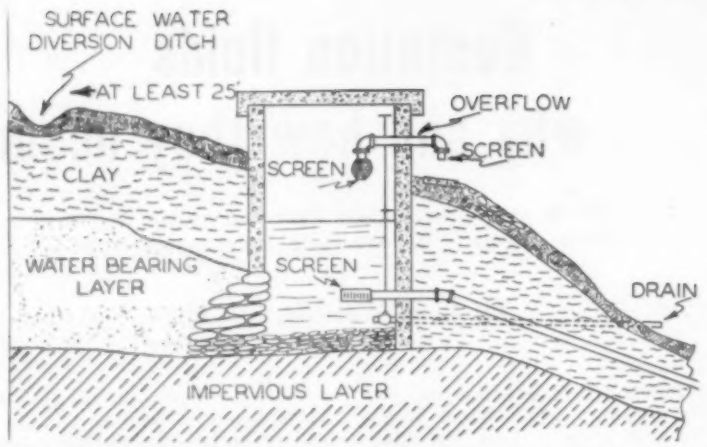


SPRING INSTALLATION with encasement and overlapping concrete cover is well protected from contamination by surface water.

Protect springs and abandoned wells

Besides being a hazard to children and livestock, abandoned wells contaminate the underground water supply.

by Gordon P. Barrington

DURING the early history of our country, springs provided a dependable supply of safe water. Today we have fewer safe springs because of the many sources of contamination.

Springs may be classified according to their mode of origin, into gravity and artesian springs.

The water in an artesian spring is confined below impermeable layers and is under pressure because the source of water is at a higher elevation than the spring. For this reason the water from artesian springs is less likely to be contaminated than the water from gravity springs which have their origin much closer to the surface of the ground.

Contaminated surface water is more likely to pollute the water in a gravity spring than in an artesian spring. In limestone areas, however, sewage or other polluting matter may enter the water-bearing channels through sink holes or other large cracks or crevices in the limestone. This polluted water may come to the surface of the ground at a spring. Usually it is difficult to locate the source of pollution and such a spring cannot be made safe.

Check spring before using . . .

Because the water from springs of all types can so easily be contaminated, they are not considered as ideal sources of water for the dairy farm.

Dairy farmers who must get their water supply from a spring should take every precaution in the development of the spring so as to insure a safe supply of water. The most important items in the protection of springs are:

1. Proper encasement and covering.
2. Protection from surface water.
3. Fencing of the spring area to protect it from livestock.

First of all, the spring site should be excavated sufficiently to locate the true spring opening and to insure a firm foundation for the encasement. The encasement should be relatively watertight. Generally, the encasement is made from cast in place concrete; however, large clay or concrete tile can be used for this purpose. Extend the encasement so the top will be above grade. It should be fitted with an overlapping reinforced concrete cover which is removable.

Use an asphaltic material to seal the cover on the encasement. This will keep insects, earthworms, dust, dirt, and other foreign materials from getting into the spring.

The lower portion of the encasement adjacent to the spring should be constructed in such a manner as to admit the spring water into the encasement. Flat field stones can be used.

In cases where the spring water enters from the bottom of the encasement, about six inches of clean, washed gravel should be placed in the bottom of the encasement.

Screen inlet and outlet . . .

The encasement should be provided with an overflow pipe, a drain, and a discharge. Both the inlet and outlet end of the overflow pipe should be screened to keep out insects, rodents, and so forth. The inlet end of the discharge pipe also should be screened.

The inlet end of the drain should be fitted with a valve. The handle of this valve should be extended so it can be operated without reaching into the water. Outlet end of drain pipe should be above grade.

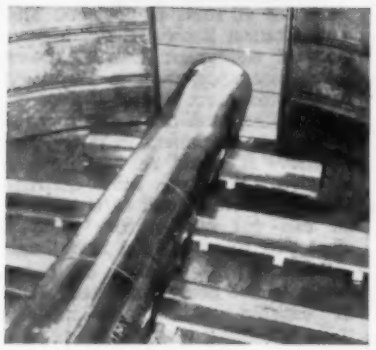
A diversion ditch will help prevent surface run-off water from getting into the spring. This is important because surface water can contaminate the spring water. If the surface water is not diverted, it may seep along the encasement wall and enter the spring through the opening provided for the spring water.

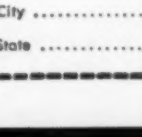
The diversion ditch should be 25 feet or more up grade from the spring encasement. If the area is free of trees, stumps, and rocks, a deep furrow can be plowed, turning the furrow down grade.

Finally, an area of at least a

The author is a professor of agricultural engineering, University of Wisconsin.

LOW COST CORN DRIER





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half acre around the spring should be fenced to keep out livestock.

Springs protected as outlined are quite likely to furnish a safe supply of water. Water samples should be taken every three or four months, and submitted for bacteriological examination.

If the water analysis shows the presence of harmful bacteria, the use of the water for domestic and dairy purposes should be discontinued until the spring has been reconstructed to exclude the pollution and has been disinfected.

Springs are difficult to disinfect because the spring continues to flow diluting and carrying away the chlorine. It is recommended that the sanitary engineer of the Health Office be contacted for an approved method of disinfecting the spring.

Fill abandoned wells . . .

Improperly abandoned wells can be the cause of at least two major problems:

1. They can be responsible for the contamination of the underground water supply.
2. They can be dangerous from the standpoint of children or livestock falling into them.

Some farms have two or three abandoned wells or dry drill holes on their property. In most states it is the landowner's responsibility to properly fill in abandoned wells.

In no case shall an abandoned dug or drilled well be used for getting rid of the effluent from a septic tank or other raw sewage. When used for this purpose, the pollution can easily contaminate the underground water supply. This will not only endanger the water supply to other wells on the farm, but may contaminate the water from wells on neighboring farms.

Neither shall abandoned wells be used for drainage purposes. Such surface water also can contaminate the underground water supply.

If an abandoned dug well is not filled in, and it is poorly covered with boards, there is danger of someone falling in. This also happens with drilled wells.

This danger exists even when the abandoned well is covered with boards and a shallow layer of soil. In time the boards will decay and then when stepped on, or driven over, they will break through.

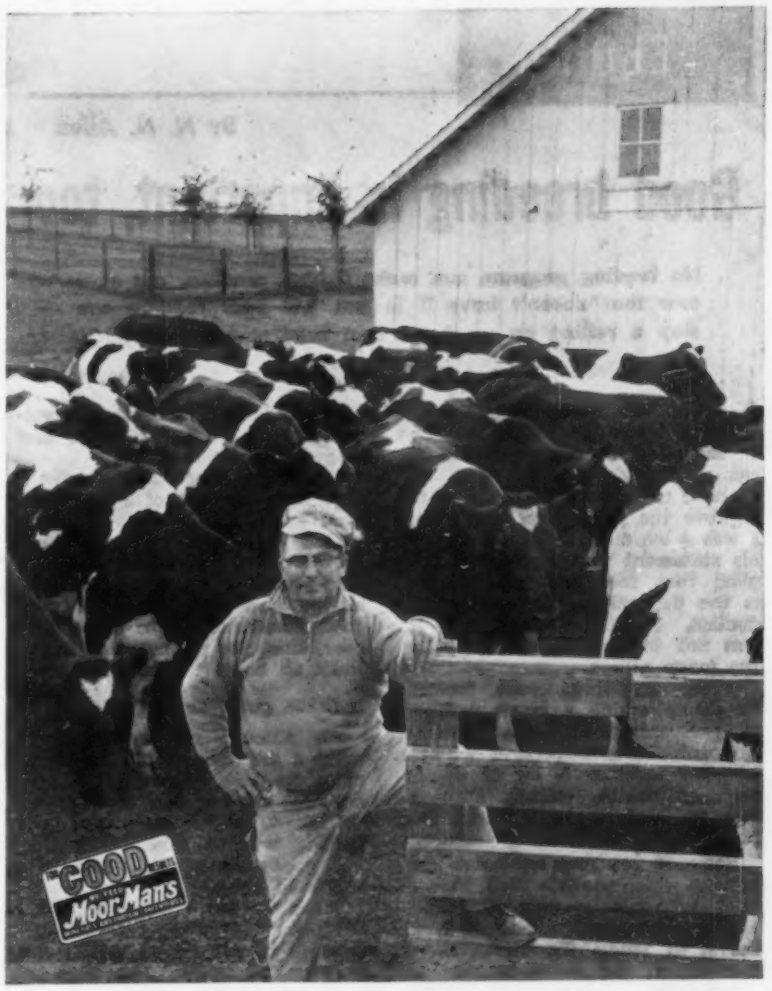
Check with authorities . . .

How should an abandoned well be filled? Usually the state well code will give specific instructions for the abandonment of wells. Since the procedure to follow may vary from state to state, it is recommended that you check with your own state health authority for specific instructions.

Generally, the procedure is about as follows: In the case of dug wells, first remove the upper (8 to 10 feet) portion of the curbing. Then fill the dug well with clean soil or puddled clay. The method to follow when filling a drilled well depends on the geological formations. The person who has charge of well drilling in your state will give you this procedure which may be about as follows:

Wells in drift formations should be filled with clean puddled clay or concrete.

The portion of the well in limestone and sandstone formations that is in the formation, should be filled with concrete or alternate layers of concrete and gravel. This portion of the fill should be capped 20 feet deep with a layer of concrete. The balance of the well can be filled with gravel or clean soil.



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FEEDING

by N. N. Allen

Good breeding is important, too

No feeding program can make a high producer out of a cow that doesn't have it in her, but poor feeding can slap a ceiling on what the best bred cow can produce.

I ENJOYED reading Mr. Peterson's letter (February 10) on the need for more genetics. I can most heartily agree that we do need more work on breeding to improve the genetics of our cows. I was a bit disturbed, however, by his statement that my article implied that feed and management is the determining factor in production. I sincerely hope that it was not interpreted that way by too many others.

There are three main factors which determine a cow's production: Breeding, feeding, and management. In management, we are lumping together a lot of things such as health, culling, housing, and so forth, that all affect the herd's production.

Some of you may remember the articles which the late W. J. Fraser used to write in this magazine. He compared the situation to a barrel in which the staves were not all of the same length. It takes only one short stave to limit the capacity of the barrel. If the breeding stave is short, it doesn't help to have the feeding and management staves longer. Likewise a short feeding stave brings the volume right down regardless of how long the others are.

No feeding program can make a high producer out of a cow that doesn't have it in her, but poor feeding can slap a ceiling on what the best bred cow is able to make. And among poorly-fed cows, it is mighty hard to tell the ones with good inheritance from those with poor, since the poor feeding brings them all down to the same level.

It takes good cows . . .

No amount of feeding could make a profitable herd of a bunch of white-faces which have been bred for another purpose; nor can we realize the full benefits of good feeding without selection, culling, and good management, even in a well-bred herd.

When we get a top-notch, high-producing herd, we can be sure that all of the staves in the barrel are full length. The cows are well-bred, well-managed, and well-fed. But when a herd is doing poorly, we can't be so sure which is holding them down. It's probably some of each, but when we get down in the 250-pound fat range, I believe that the cows usually have more than that in them if they were given a chance. And, I think that poor feeding is usually a very big factor in holding them down.

Suppose this herd were as bad in inheritance as their records indicate, and that they were well fed. They would be a sleek, fat bunch of loafers. But when we look at the poor-producing herd, we usually see thin cows which tells us that they are trying their best to produce more milk. They aren't loafers that are wasting feed; they just aren't getting a fair chance. They may not have the inheritance for top production, but at least it is better than the feeding will let them show.

We have good evidence of this same thing in our artificial breeding results. We now find many herds that have three or four generations or even more of animals from the well-bred, carefully-selected bulls of their association. The influence of the cows they had in the beginning has been pretty well diluted out.

The inheritance is much like that in the herds of their neighbors who have used the same bulls. Yet, we find some of them doing very well, showing that the bulls were not counterfeits, while others from the same bulls are doing poorly. To me, this indicates that feeding and management are holding down the poor ones.

Breeding research . . .

Research on breeding is not being neglected. At the Wisconsin experiment station (Mr. Peterson's own state), a herd of over 100 cows is being used almost entirely for breeding research. This work is carried on in cooperation with the U.S.D.A. and is a part of a large regional project in which a number of experiment stations are cooperating and sharing their planning and results. I don't know any feeding project of equal size.

In addition, specialists in dairy cattle genetics are using electronic calculating machines to process thousands of D.H.I.A. production records. Their biggest problem is caused by the fact that the cows have not all had equally good feeding and management.

How many times has a breeder sold good animals to poor feeders and caretakers, where they did a poor job of advertising his herd?

I bought a new power saw a few days ago for my workshop. With it was an instruction book on how to set up and operate it. There were plans for a work bench on which to mount it to get better results. Also, there was a free course of instruction and a lot of plans for all sorts of projects. The manufacturer knows he has a good piece of equipment, but he knows that proper operation is necessary to get the most out of it.

In selling well-bred cattle, particularly to beginners in purebreds, I believe it would be worth while to give the buyer some instructions on feeding and care so that he can get out of the animals what you know is bred into them.

Research in genetics of dairy cattle is not being neglected. It is in capable hands, and modern tools are being used to get results as rapidly as possible. I do not intend to minimize the importance of good breeding and management. If I seem to do so, just remember that my chore is to try to bring you information on feeding. We all know that it is poor business to feed cows that do not have good inheritance.

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LARGER MILK CHECKS . . . that's your goal . . . and the goal of any efficient dairy farmer. And there's just one big way to increase the net value of your milk checks . . . by cutting your production and feed costs. Thousands of dairy farmers (yes, some of your own friends and neighbors, too) use OCCO's Dairy Feed Program to supplement their own pasture grasses and legumes. They are getting increased milk production and higher herd tests at lower feed costs. Let your OCCO man show you how OCCO Dairy Supplement, with OCCO Dairy Mineral and OCCO-Lak can improve your dairy profit picture. *Remember, more than 80% of OCCO feeders reorder OCCO . . . proof of QUALITY, proof of RESULTS!*

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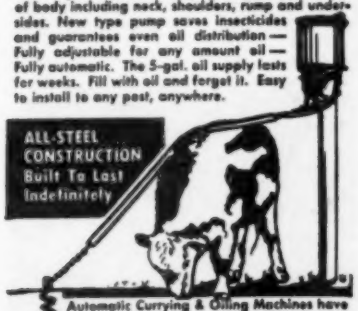

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New uses for milk

SCIENCE is pointing the way to many new uses for milk — a protein "extender" for meats, a main ingredient for high-protein bread, special types of butter, and as a valuable supplement for foods.

Scientists at Oregon Dairy Industries conference held recently turned the spotlight on half a dozen probable trends that could revolutionize the dairy industry within the next 10 to 15 years.

Dr. Michael J. Pallansch of the U. S. Department of Agriculture's utilization research and development division, said such "customized" use of milk is the dairy industry's greatest hope in the highly competitive food market.

Different butter types . . .

Oil and fat components of butterfat should find many uses in the food industry, Dr. Pallansch explained. Butterfat is composed of many physical forms of fat, all having equal flavor value but wide variations in melting points. Types of butter could range from easy-to-use liquid to butter that stands up under high temperatures.

The lactose or carbohydrates could be used commercially in manufacture of plastics instead of "continuing to dump most of it down the sewer," the researcher explained. He added that the research center is also making progress toward greater utilization of whey and other waste products in livestock feed.

Increased use of powdered milk and concentrated fluid milk also was predicted. Research is developing whole milk powder that can be stored without refrigeration and then be brought up to the original whole milk flavor with addition of water.

Also in the research stage is a sweet condensed cream that keeps well and retains flavor at temperatures up to 70 degrees. It is a mixture of butterfat, water, nonfat dry milk, and sugar.

Research workers say the cream could be processed in nearly any dairy plant and should find wide use as dessert topping and in making ice cream.

The U.S.D.A. research center has also developed a method to bake a nutritious high-protein loaf of bread that includes 25 parts of milk, by weight, to 100 parts of flour. Six parts of milk per 100 parts of flour is the common ratio for commercial bread baking.

New evaporation process . . .

A new method of evaporating milk at low temperature with heat supplied by compressed ammonia, rather than conventional steam or hot water, was explained by George D. Armerding, an Oakland, Cal., dairy plant representative.

He said the milk is concentrated at less than 100 degrees, loses practically none of the original flavor, preserves more of the protein, and is cheaper to make.

Even "jet-age" technology came into the picture in the form of a new insulating material for refrigerated milk trucks. The material (a liquid plastic that hardens with addition of chemicals) was developed to strengthen tail sections of jet planes. The liquid mixture finds its way into small crevices before hardening into a porous, strong, adhesive material.

W. J. Thompson, transportation manager for Carnation company, Los Angeles, says the material has given excellent results as an insulator for milk tank trucks and refrigerated vans.

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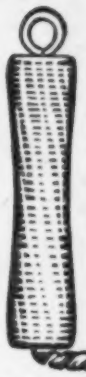

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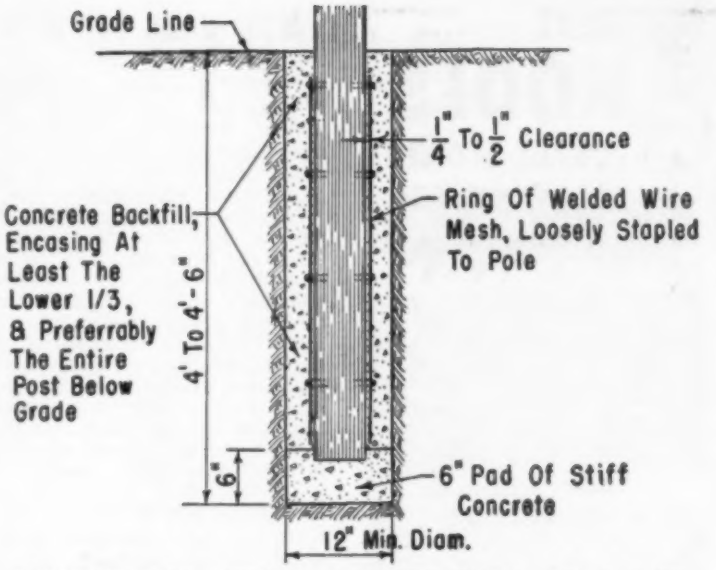
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CROSS SECTION showing properly-anchored pole. Set in a concrete encasement, it will resist settling, leaning, and pull-out.

Anchor pole buildings in concrete

Correct anchorage reduces overturning in windstorms and settling under snow loads.

by G. L. Nelson

A POLE frame building is no stronger than its anchorage into the ground. Although the below-grade portions of the poles are covered up and out of sight after the building is finished, the parts of the poles below the ground are vital to sound building construction.

Downward loads due to snow or ice plus building weight can be as much as 1½ to 2 tons per pole, depending upon the size of the building and snow or ice conditions. The loads will be much higher if stored materials, as in a two-story barn, are being carried by the pole frame. These loads can cause parts of the building to settle out of shape if the pole footings are weak.

Prevent wind damage . . .

Uplift on the poles due to suction on the roof during windstorms can be as much as one ton per pole. Horizontal wind forces can bend the poles out of position or out of plumb, if not well anchored.

Experiments and experience show that the butt of a 5- or 6-inch top pole usually does not have enough area resting on the earth at the bottom of the hole to carry the weight of snow and ice on the roof without too much settlement. An enlarged concrete pad in the bottom of the hole dug for setting the pole can provide the extra area.

Experiments at Oklahoma State University have shown that poles with a 12-inch diameter concrete footing pad settle only one-third as much as poles without such a pad.

Holds pole in place . . .

A concrete encasement or lining around the lower part of the butt in the ground gives much higher resistance to pull-out, as in a windstorm. This concrete helps to "key" the pole to firm ground. Tests have

The author is a professor of agricultural engineering at Oklahoma A & M College.

PULL-OUT TEST (7,500 pounds) shows cone of earth heaved with pole. In tamped-earth anchorages, the pole slips out of the ground.

METAL STRAPS are used to secure girders to tops of the poles.

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shown that concrete around the lower third of a pole set in a 12-inch diameter hole 4 feet deep have 4½ times the pull-out resistance compared to poles with no concrete.

Anchorages with the lower third encased in concrete developed maximum pull-out resistance of over 7,500 pounds with upward movements of less than ⅞ of an inch.

The soil around a pole anchorage is apt to shrink away from the pole when the ground dries. Therefore, the concrete needs to be placed around the part of the pole deepest in the ground where moisture changes are not so great and shrinkage is less.

Posts with a 12-inch diameter filling around the entire 4 feet in the ground can resist pull-out loads of over 9,500 pounds with upward movements of only 1½ to 2 inches.

Concrete also stabilizes the poles against overturning or leaning due to side forces on buildings in windstorms. A concrete encasement around a pole can reduce side movement to two-thirds or less of the amount that occurs with poles in holes back-filled only with tamped earth.

Recovery to an upright position after the tilting load is better for poles with a full concrete encasement. As a result, final amount of movement for poles anchored in a concrete encasement is only about one-fifth as much as with poles set in tamped earth alone.

Dig a 12-inch hole . . .

The hole dug to receive the pole should be at least 12 inches in diameter and 4½ feet deep. First, about 6 inches of fairly stiff concrete should be placed in the bottom of the hole to serve as a footing pad for the pole and assure good bearing conditions.

Before installing the pole in the hole, a "barrel" or ring of ordinary welded wire mesh reinforcement should be wrapped around the part of the pole to be encased in concrete and loosely stapled in place with long staples.

There should be clearance of about ¼ to ½ inch between the pole and welded wire mesh. Then the end of the pole can be placed in the hole on fresh concrete pad.

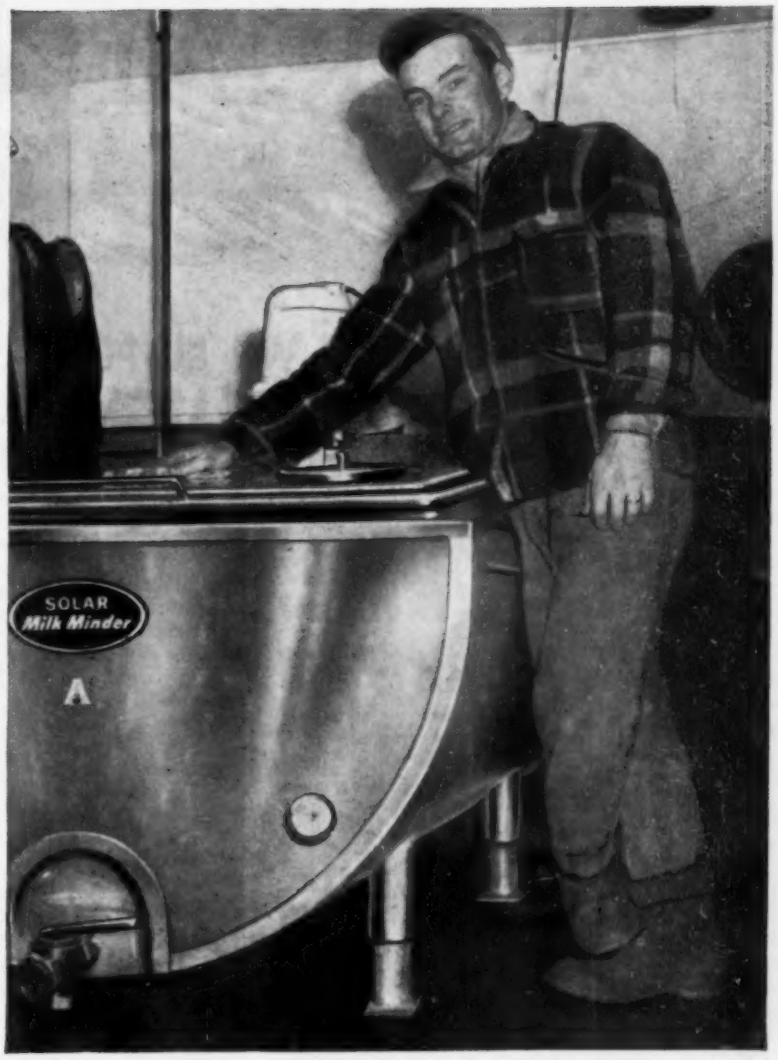
The pole should be adjusted to the correct position and plumbed. After the pole is temporarily braced to hold it in its final position, the hole should be backfilled with concrete to at least one-third the depth of the below-grade portion, and preferably the entire depth. The welded wire mesh will help to prevent cracking of the concrete after it hardens and slippage of the pole away from the concrete.

Use small aggregate . . .

The fresh concrete should be thoroughly worked into the spaces around the welded wire mesh and between the pole and the sides of the hole. It is important to use concrete that has no pieces of aggregate larger than ½ inch because these would keep the concrete from thoroughly filling in around the reinforcement.

Other approved, sound construction practices should be followed with pole frame construction. It is of little use to properly anchor the pole frame into the ground without also making sure that the fastenings which secure other parts of the building frame to the poles will hold under all conditions. One method is to use metal straps to secure girders to the tops of poles. Devices such as metal framing clips can be used to secure rafters to girders or plates.

Help crippled children by using Easter Seals.



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says Ervin Van Strydonk of Harrison, Wisconsin

"I know I'm saving money since installing my Solar Milk Minder because my electric bills are lower. When I bought my Milk Minder the dealer told me that Solar's Controlled Flow Expansion cooling system would cool milk faster and use less electricity. He certainly was right. I've noticed that the compressor runs only a few minutes after we've completed milking.

"I've also noticed that it takes me less time to do my milk chores. Pouring is faster and so is cleaning, because of the Milk Minder's low design. And time saved means money earned to me."

You, too, can save more money if you have a Solar Milk Minder in your milk house. Get all the profitable facts today! Find out about Solar's financing plan, too.

Available in capacities of 100 to 700 gallons with remote or self-contained condensing units.

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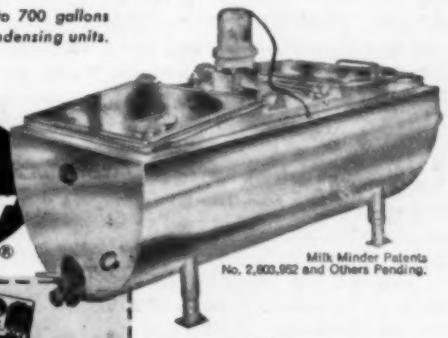

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EDITORIAL COMMENT

SIX REASONS WHY WE SUPPORT SELF-HELP

OUR friends often ask us why we devote so much of our time and energy to the search for a better and workable dairy marketing or price support program. Why do we enter into the no-man's land between the battle lines of farm organizations and political parties trying to mediate differences which appear irreconcilable because so often they are motivated by partisanship rather than the public interest?

Sometimes we wonder, too. But we do have our reasons and they are these.

1. We are convinced that the calling of the dairy husbandman ranks high in the eyes of God. His is a mission of kindliness, service, and sustenance to his fellowman. The qualities of patience, mercy, and humility are ever present. Can we, in good conscience, stand idly by while such fine people, through no fault of their own, suffer an economic injustice? Can we, as professed Christians, in our position of responsibility fail to contribute all the energies we possess to righting a wrong?

2. We are a peaceful people. We abhor intemperance, conflict, and violence. Convinced that continued economic distress breeds intemperance, conflict, and often violence, we have sought to alleviate the causes of dissension which are known to shatter family and community unity. Those of us who have served in major wars know that the veneer of civilization we possess wears exceedingly thin under stress. Are we not obligated to seek diligently a peaceful solution to our economic problem?

3. Dairy farmers are already served by as many as 22 national dairy organizations and many general and local farm organizations. The leadership in these groups, for the most part, is mature and experienced. Unfortunately, in many instances, it has grown soft because of a prolonged period of economic well-being which has not challenged its creativeness, originality, or statesmanship. Like an unused muscle or limb, it has lost its strength. We have hoped to exercise those leadership muscles, rebuild their strength. If courageous, effective leadership is not provided, a myriad of new organizations will spring up to be added to the many which now exist. An even greater bureaucracy of farm and dairy organizations will result, with even greater problems of reconciliation of differences among the various groups. As history has shown, many false starts are made and many mistakes are inevitable as new leadership and new organizations run the gamut of experience in reaching maturity of policy decisions. We had hoped that we need not undergo this laborious and painful experience.

4. We fear the state. While the state in a democracy is considered to be the servant of the people, history is replete with the evolvement of the reverse relationship. We see in a continuation of the present price support program a reaction of eventual frustration which will find us backing into a state-controlled dairy program wholly dependent upon political considerations and arbitrary production control measures imposed by a political unit of government. To us, this is repugnant and the most undesirable alternative available to dairy farmers. We would far prefer dairy farmers to handle their own dairy stabilization program in a democratic, self-sufficient manner.

5. Bigness is an obvious prevailing characteristic of our economic evolvement. With growth in the components of industry and labor comes comparable growth in economic bargaining power. Only agriculture finds itself ill-equipped to maintain itself in the economic sun. The self-help dairy stabilization program, often discussed in these pages, provides dairy farmers with the economic bargaining power to protect themselves against the might of industrial and labor growth.

6. We firmly believe in the independence and dignity of the American dairy farmer. We believe he wants self-sufficiency and the self-determination of his own economic destiny. Our history conclusively proves he cannot find it alone. Only through joining with his fellow dairy farmers in a cooperative venture can the mass of economic problems he faces be solved.

THE "DO-NOTHINGS" AGAIN

THREE printed analyses of the self-help dairy stabilization bill have come to our desk within the past few weeks. In summary, they have reflected extensive work on the part of the analysts. Certain of the criticisms have validity. Others are figments of imagination, clearly indicating that the author was scraping the barrel for arguments which would justify his opposing the bill.

Constructive criticism is a cornerstone of democracy. Destructive criticism is an erosion of society.

Had the critics offered amendments to strengthen and improve the self-help program, we would think highly and complimentarily of them. However, to summarily deny self-help because of the presence of alleged imperfections is to reveal human motivation ranking low on the ladder of ethics.

If the critics had an alternative or a better proposal to offer than the self-help bill, they might be excused for their lack of constructiveness in their commentary. None of the three critics, however, have offered anything which would realistically maintain or improve the dairy picture. We, personally, know that one of the critics rejected economic information in the preparation of his analysis because the information, though accurate, did not support the critic's preconceived desire to disparage the program. In other words, he took a position (motivated by political considerations) and then proceeded to try to find selected data to defend his position. His analysis reveals the futility of the search.

All of which reminds us of Benjamin Disraeli's oft-quoted comment to the House of Commons in 1860: "It is much easier to be critical than to be correct."

In 1906, W. D. Hoard said:

What is required to make a man a dairyman? Surely it is not the number of acres in his farm, or the number of cows he keeps. Rather is it not a comprehension of, and conformity to, the relation of right ideas and ideals concerning the cow, her breeding, her feeding, and her care to the product expected from her?

There are multitudes of cow keepers, but how few of them proportionately are dairymen in fact. The distinction between a cow keeper and a dairyman is as broad as that between a woodsawer and a carpenter.

THE CASE AGAINST "MEATY" DAIRY UDDERS

OVER 15 years ago a show-ring champion of one of our major breeds was acclaimed, nationally and internationally, as the most nearly perfect type cow of her breed. We came to know her well as we watched her shown, year after year, in state and national competition. We saw her dry; we saw her just fresh; and we saw her supposedly milking. Like a beautiful woman with little intelligence or talent, this cow, too, was a false alarm.

Where did this highly publicized cow fail? Her apparently perfectly-formed udder was little more than a mass of muscle and fat. She might as well had a ham hanging there. When we saw her milked she gave more blood than milk. The mixed secretion was inadequate to nourish a healthy calf.

The memory of this cow came back to us recently as we listened to an Ohio dairyman, M. R. Fudge, address a national mastitis symposium in Chicago, Ill. There he told leading research workers, veterinarians, and livestock health officials that his years of experience convinced him that the quality of a cow's udder and the human element in that cow's management had more to do with prevention and control of mastitis than all of the drugs and sanitary practices that could be employed.

Farmers continue to produce regardless of price or demand, but factories shut down, and labor stops working when it doesn't get what it demands.
—J. K. Stern, president
American Institute of Cooperation

Great progress has been made in improving the udders in our dairy breeds. We only have to go back a short 20 or 30 years to recall the prevalence of pendulous, gunny sack udders; funnel teats; and severely quartered mammary glands. We suspect, however, that most of the gains have been made in the form of the udder and its attachment rather than in its quality.

In our opinion, an udder should not only be well-formed and well-attached but should be one almost fully composed of milk-secreting tissues. This means an udder, which, when milked out, collapses like an empty glove. When dry it should not be much thicker through than the width of your hand. These are udders rarely plagued by mastitis. If affected, they are easily and effectively treated.

We are pleased to note that artificial breeding associations are beginning to pay more attention to rapid milk letdown, ease of milking, and, we hope, the true quality of dairy udders. If a concerted campaign were launched to select bulls whose daughters have these characteristics, great benefits could come to this dairy farming industry of ours. More monetary contribution could be realized by our farmers than that gained by all of our expenditures for drugs and veterinary medical services directed toward the prevention and cure of mammary ills.

The ham belongs to the hog, not between the hind legs of the dairy cow.

Today, about 22 million people live on U. S. farms. By 1975 this will have dropped to 15 million, or 7 per cent of the expected U. S. population of 227 million.

Questions from Our Readers

Don't burn fence rows

Will burning fence rows effectively control weeds?
Iowa **S. J. A.**

We have never recommended burning fence rows, either by natural fire or by means of a weed burner torch. There are at least four major disadvantages to burning fence rows.

In the first place, burning eliminates any wildlife cover in the fence row. Secondly, grassy strips are desirable at intervals because they do cut down wind erosion of soil.

In the third place, burning either with natural fire or a weed burner torch destroys the galvanizing on the fence and makes it more subject to corrosion. This is especially objectionable in a new woven wire fence.

Lastly, there is always the danger that wooden posts may be ignited and burn off. This is especially true if a lot of grasses in the fence row are low-growing and matted near the ground line. This would make an intense fire near the ground level where many of the older posts are somewhat frayed and punky.

For the control of most broadleaved fence-row weeds you can use a water solution or emulsion of 2,4-D, either in the amine, but preferably in the ester form. One quart of a 4-pound-per-gallon 2,4-D concentrate is sufficient for 25 gallons of water.

Spray the weeds in the fence row when they are about 1 foot high, just covering them as though they are covered with a light dew. Maybe the first year you can spray twice, once about the latter part of May, and then about July 1. The latter spraying would catch any broadleaved annual weeds which might have germinated after the first spraying was done.

Always use low pressure (25 pounds) and see to it that no spray drifts into such sensitive crops as garden crops, soybeans, clovers or alfalfa.

Spraying with 2,4-D does not injure grasses such as timothy, redtop, bluegrass, or brome grass. Hence, in from one to three years of controlling the annual and perennial broadleaved weeds in such fence rows, and preventing them from seeding, you should have a beautiful, clean, grassy fence row. This is much more desirable than a burned fence row.

—E. P. SYLWESTER

Why does ceiling sweat?

I am writing to you for advice on my barn problem. Last summer I enlarged it but still have my old trouble with a sweating ceiling. It actually drips.

I lined it with shiplap and cut holes on each end as vents. I also have a fan on one end.

This barn houses 12 head of cattle, plus room for hay. I have three doors, one on each end and one in the corner. Is it advisable to insulate this and what kind should I use? Can I use dry cedar shavings successfully?

Minnesota **J. E. T.**

The ceiling of your barn sweats because it is not sufficiently well insulated. At least four inches of shavings should be placed over the entire ceiling. Cedar shavings are satisfactory. It would also be desirable to fill the walls of the barn with shavings.

The shavings must, however, be protected by a vapor barrier placed between them and the inside of the building, otherwise they will become wet and decay will start. A vapor barrier is a material through which water vapor, which is given off in the breath of animals, will not pass.

Adjust the fan so that it will run all the time, if possible. It may be necessary for you to build a duct around the fan extending down to about 15 inches above the floor. The amount of air which the fan removes from the barn can then be controlled by a damper placed in the duct. Regulation will likely be necessary only in sub-zero weather. Do not try to keep the temperature of the stable above 45 degrees; 40 degrees would be best.

—D. W. BATES

ED . . . and EMMA

". . . and then they're gonna put all these cows in the next Sputnik . . ."

". . . so it'll be the first 'herd shot around the world'!"

Questions farmers ask most often about

vitamin D nutrition

Q: What does vitamin D do when I feed it to my livestock?

A: **Vitamin D prevents rickets and helps livestock use calcium and phosphorous properly and efficiently for building sound bones and meeting other body needs related to rapid growth, efficient feed utilization, good fleshing and well-being of the animal.**

Q: What happens if my livestock do not get enough vitamin D?

A: **Symptoms of severe deficiency (rickets) are stiffness, bowed legs, arched back, swollen joints, difficulty in lying down or moving about, hair coat dull and coarse, and over-all appearance of unthriftiness. Mild or borderline deficiencies which do not cause symptoms severe enough to be noticed occur far more frequently and are the ones that cause the greatest loss in profits through slower growth and poorer feed utilization.**

Q: Won't my livestock get enough vitamin D from sunshine and hay?

A: **Sometimes they will, but sunshine and hay are highly variable and unpredictable sources of vitamin D. Feeds adequately fortified with vitamin D provide protection. Look for the words "Irradiated Dry Yeast" on the feed tag.**

Q: Do dairy cows need vitamin D?

A: **Yes. Work at the South Dakota Experiment Station showed that dairy cows become stiff, lame, develop swollen joints, arched back, difficulty in moving about or lying down, fail to come into heat, and have weak calves with poorly mineralized bones and rickets-like appearance. There was also evidence of poor appetite and marked decrease in milk production.**

Q: Can Milk Fever be prevented? If so, how?

A: **Yes. Fifteen years of research at the Ohio Agricultural Experiment Station have resulted in a highly effective method of prevention.**

1. Feed 30,000,000 units of vitamin D_2 daily, preferably in two equal feedings, for 5 to 7 days before calving. 2. Provide plenty of calcium and phosphorous. 3. Discontinue feeding the vitamin D_2 at the end of 7 days even though cow has not calved. 4. If calving occurs before the vitamin D_2 has been fed for 6 days, feeding may be continued for 1 day after calving.

Thirty million units of vitamin D_2 are supplied by 7½ ounces of Fleischmann's FIDY Irradiated Dry Yeast, Type 142-F.

G. C. Wallis

Have You a Question?

If you have questions about animal nutrition concerning vitamin D fortification or Milk Fever prevention, write to Dr. G. C. Wallis, Director of Nutrition, Agricultural Department, Standard Brands Incorporated, 625 Madison Avenue, New York 22, New York.

Standard Brands Incorporated

New York 22, New York

Cold lye best for rubber

(Continued from page 297)

Tests show that no damage is done to the synthetic materials under practical conditions of use when the 5 per cent lye solution is used. However, the strength may be lowered to 2.5 per cent when using Buna or neoprene "rubber."

Transparent plastic milk hoses should **not** be stored in strong lye solution as it makes them extremely hard and brittle.

Users of neoprene and Buna rubber inflations will find that the most important improvement resulting from using the strong cold lye treatment is the clean odor of the treated parts and lower bacterial contamination. Gum rubber parts show the greatest improvement from the treatment.

Better than lye-boiling . . .

Research studies previously published by the Michigan Agricultural Experiment Station show that storing rubber in strong cold lye for seven-day periods extracts several times more fat from rubber than the lye-boiling method.

In addition to being more effective, the cold method permits repeated use of the lye solution, decreases dangers inherent to using hot lye and, in general, cuts down labor and costs of heating. In addition, the equipment cost for the cold lye is very low in comparison to that for boiling.

What should be done with rubber parts during the week they are used on the milker?

Many milk inspectors like to have parts hung up to dry after washing. They reason that the parts are more easily inspected for cleanliness. This is not justified considering the amount of fat which is extracted after only one week of use. Nor is it justified by the odors and flies which are found in milk houses, or oxidation effects on rubber exposed to air. Lye solution should also be used here, but only in 0.5 per cent concentration.

Chlorine solutions are still used by some farmers for between-milking storage. It is seldom recommended by fieldmen or sanitarians, however, because of its damaging effect on the rubber. With the chlorine storage treatment, rubber cracks and checks, and thus sheds rubber particles after a short time. Chlorination should only be used just before milking with a strength of 100 parts per million advised.

The strong cold lye storage treatment for milker rubber parts has been used enthusiastically by producers throughout Michigan, Indiana, and Ohio where state university extension specialists and dairy fieldmen have promoted its use.

Carnation Milk Company, with headquarters in Los Angeles, Calif., has used the method on producer farms in all areas of the United States and Canada where their plants are located. A survey made by Carnation fieldmen shows a hearty endorsement of the method. The results are summarized below:

	No. of farmers reporting	New system superior	No difference	New system inferior
		per cent	per cent	per cent
Patrons' four-month methylene blue record compared with same period a year earlier	96	56	36	8
Life of inflations	90	85	15	0
Cleanliness of inflations in patron estimation	113	93	6	1
Speed of milking	96	39	61	0
System preferred by patron	108	95	5	0
Relative economy	110	47	50	3

These comments and conclusions were made by the Carnation Milk Company fieldmen in connection with their survey:

"Most fieldmen concluded that the head gasket and milk hoses should be included in the 5 per cent lye treatment.

"About half of the fieldmen found dry storage of rubber parts, particularly of short tube milkers, satisfactory during the week they were in use if they were thoroughly scrubbed daily. Very few found dry storage of long tube machines satisfactory during the week they were in use.

"About half of the fieldmen recommended wet storage and dilute lye solution without exception. Most fieldmen seemed to question the average patron's ability to give the inflations the proper daily cleaning necessary to make dry storage safe.

"Most fieldmen reported little difference noted in the effects of the lye treatment on inflations, etc., made of various rubber and plastic compounds. One fieldman indicated that the 5 per cent lye makes the synthetic rubber more pliable, milk better, and last longer. A few did not recommend the 5 per cent strength for synthetic rubber.

"There was a wide variation in conclusions concerning frequency of renewing the 5 per cent lye solution. The majority of fieldmen recommended changing the solution at time intervals ranging between once monthly and once every three months. Most of the vessels for the 5 per cent lye solution were earthenware crocks, of three- to five-gallon capacity, although a few two-gallon size were used. The lye solution had started to seep through a few of these containers . . .

"Most patrons used wooden sticks or spoons, canning tongs or wire hooks, to remove the rubber parts from the strong lye solution . . .

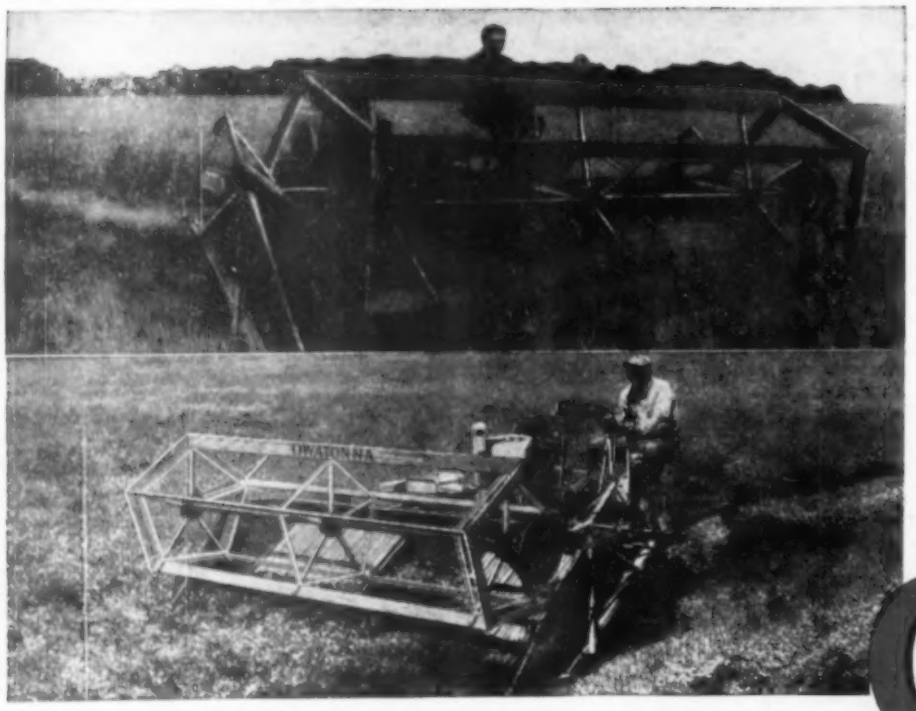
"There was unanimous agreement that safeguards from children and accidents must be provided. In addition to providing well-covered containers, arrangements usually were made to have the lye container and the lye supply kept at a safe place. In some cases these were locked cabinets. One fieldman reported that old refrigerator cabinets, equipped with a hasp and lock, provided ideal storage which was less apt to freeze.

". . . It was generally observed that the 5 per cent lye storage produced a white film on the rubber parts, particularly on the inside of the inflations, and it was reported that this material was easily scrubbed off in clean water, especially when a detergent was added. In one case when trouble was experienced in removing this material, it was easily corrected by soaking in a milkstone remover and then brushing."

The many benefits to milker rubber of soaking for seven-day periods in 5 per cent cold lye solution are, therefore, thoroughly tried and proven. It remains only for farmers to avail themselves of the practice. **THE END**

The Easter Seal Society treats crippled children regardless of race, religion, or cause of crippling. It is the oldest and largest voluntary agency serving the crippled.

OWN THE WINDROWER THAT PAYS IN HAY TOO!



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Crops get in fast when you windrow with an Owatonna, the original self-propelled design. With the same machine you cut and windrow in one fast trip, get hay or grain crops when they're ready, open fields anywhere, split fields, turn on a dime and never run over the crop.

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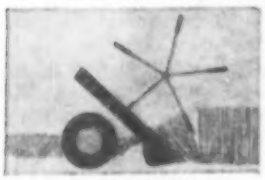

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OPEN FIELDS ANYWHERE! Take ripe patches first. Never backswath, never run over crop.

PLANETARY DRIVES! Plenty of power, comfort platform, hydraulic reel and platform.

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Built-in TUG & PULL Cow Milking

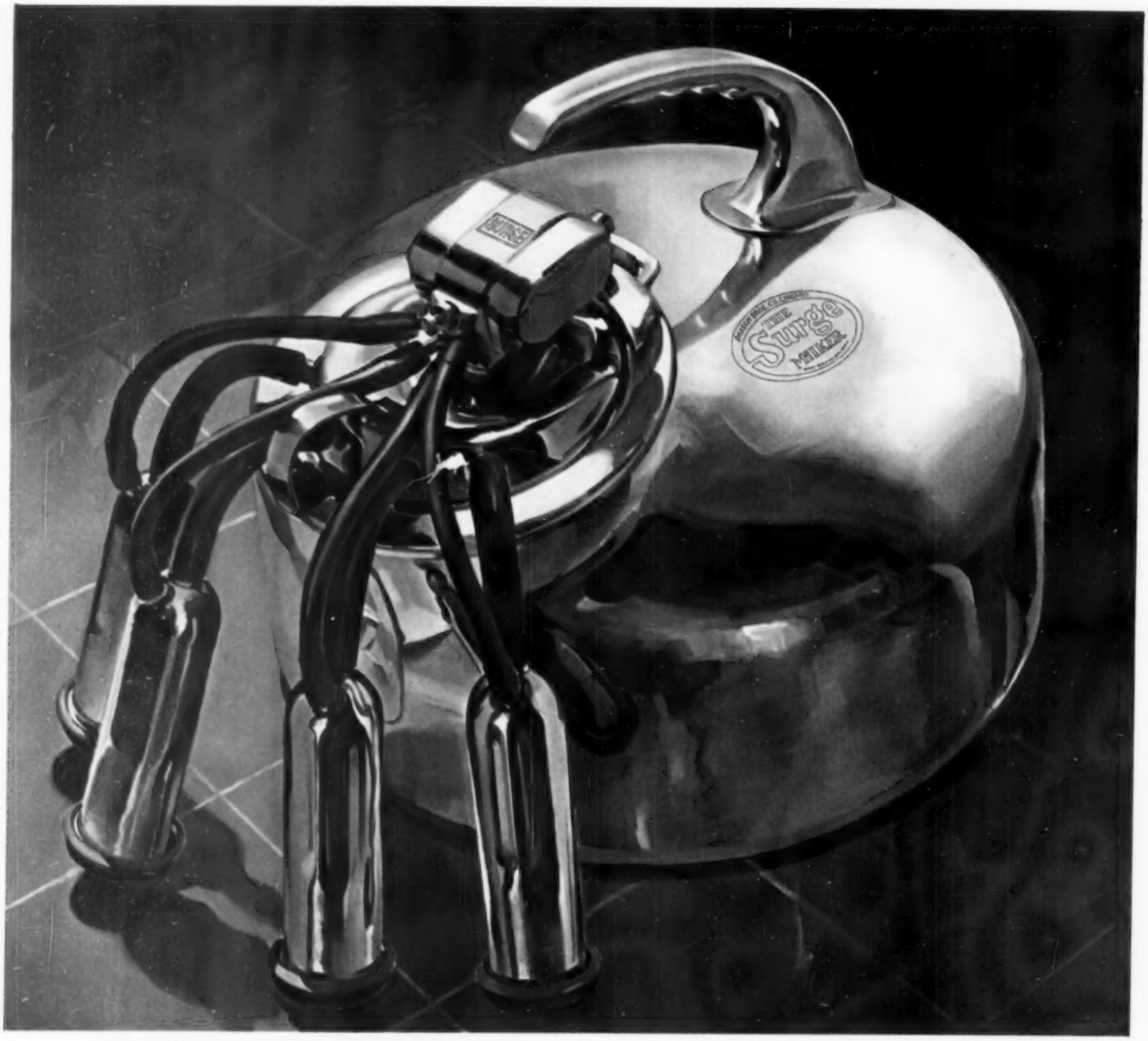
"No calf, no man and no machine can do a safe, satisfactory and complete job of milking cows without TUG & PULL. They never have — they never will."

It is now thirty-five years since Surge first introduced the milking machine with the built-in downward and forward TUG & PULL . . . the machine that was so easily and quickly scrubbed clean.

We start 1958 with a New Surge Bucket that does an even better job of Genuine TUG & PULL Surge cow milking and one that you can see at a glance is even easier to scrub clean.

The New 1958 Surge Bucket Unit is still $5 DOWN with up to 24 months to pay.

Turn to next page



SURGE Bucket Milker –

We have never quit trying to think up changes that would make the Surge do a little bit better job of milking. We have never quit trying to build a bucket that would be a little more durable and a little bit easier to clean.

The 1948 Model of the Surge Bucket Milker was just good enough so that it was no easy job to build it better, but we are now sure that we have done it.

Men who have used the Surge to milk a lot of cows for thousands of milkings tell us that this 1958 Model does reach all quarters a little better — that it gets more irregular quarters handled and that they can milk faster.

As for ease of cleaning — this is a bucket that you will be proud to show to your quality control man as often as he comes 'round.

A Looking-Glass Finish Outside and . . . INSIDE!

This new Surge Bucket won't wash itself, but it does make it mighty easy for you to see whether it is clean or not, because every bit of it outside . . . and inside . . . is looking-glass bright.

It is so slick and smooth and so clean and shiny that it is hard for milkstone to get any kind of a toe hold. It is built of heavy and durable genuine 18/8 stainless steel and you won't be able to find the seam.

Surge Buckets come in 3 sizes

Better breeding and better feeding have steadily stepped up average production. We like to believe that the constantly increasing percentage of cows that get TUG & PULL Surge milking may have helped more than a little.

Whatever the cause, it is a fact that cows do give more milk than they did ten years ago . . . so . . . we have built the new 1958 Model of the Surge Bucket so that it holds more pounds of milk.

For the extra-heavy producer, we build a Big Bucket. We don't guarantee that you don't have a cow that will run it over, but if you do have, you've got a good cow.

For the smaller breeds with udders closer to the floor, we build a Small Bucket.

-Model 1958

urge Bucket Milker Unit — Model 1958

$5 DOWN

Up to 24 months to pay the balance!

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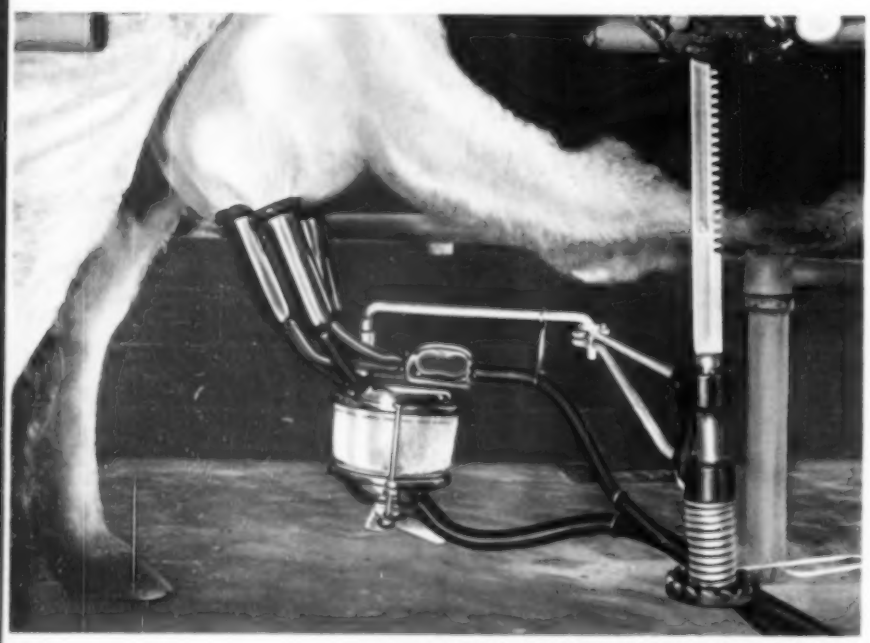
Flag down a Swamp Holly Orange Truck **and tell the man that you want to look at your face in his new Surge Bucket. Ask him to tell you all about Five Dollars Down . . . it could be that you will decide that it is time that you had a new and better kind of milking machine in your barn.**

You can save quite a lot of time twice a day getting the cows milked and quite a lot more time washing up the machine . . . and . . . you will dodge some udder trouble.

Bucket or Pipe Line Milkers



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SURCINGLE BREAKER CUP FOR STANCHION PIPE LINES

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Genuine Surge TUG & PULL

is still the best guarantee of really good cow milking that you can buy.

We have carried this Genuine Surge TUG & PULL to all kinds of Surge Pipe Line Milkers.

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Surge Pipe Lines drain automatically and you can use Surge ELECTROBRAIN to provide real Push-Button washing and thus be sure that your outfit is clean.

. . . and VISIBILITY

All Surge Pipe Line Milkers let you see the milk flow and that's a big help when you want to do fast milking. Ask your Surge Service Dealer about Surge Pipe Lines and Parlor Stalls.

Backed by ORGANIZED SURGE SERVICE

Your Surge Service Dealer makes your Surge Milker worth more money because no milking machine can ever be much better than the service behind it.

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No Surge Service Dealer is absolutely perfect; therefore, Organized Surge Service is not perfect, but the chances are excellent that it is much the best available to you.

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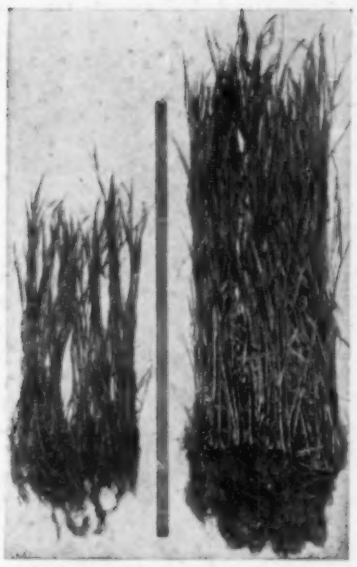
Low-cost protein in Balbo rye

Illinois tests show that 10 acres will take care of 40 cows for over a month.

by H. J. Snider



FERTILIZED on right produced 810 lbs. protein per acre, while unfertilized on left produced only 244 lbs. protein on dry matter basis.

LIVESTOCK men are always in need of additional low-cost protein feeds. This need is likely to be most urgent in the fall when regular pastures are short, and again in the early spring before normal pasturage is fully under way.

There is no crop which fills this gap in the fall and spring pasture seasons better than Balbo rye.

Balbo rye is a winter variety and an upright, rapid-growing plant. This upright growth habit makes it especially desirable for fall pasture because most all other varieties have a sprawling growth which lies close to the ground and is less desirable for fall pasturing.

It has been observed that Balbo made 40 per cent more forage in the fall than did a number of other varieties.

The rapid growth and high quality may be illustrated by some Illinois tests. Balbo seeded in early September had a first month's growth (early October) of 600 pounds dry hay an acre containing 32.5 per cent protein.

It is said that a mature cow will consume 25 to 30 pounds of dry forage per day. On this basis the first month's growth would allow 20 days pasturing for one cow on one acre and supply a feed which contained nearly double the protein of average alfalfa hay.

The second month's growth (November 2) was approximately 1,200 pounds an acre (dry basis) and contained 33.1 per cent protein. By the end of the third month (early December), the fall growth amounted to over 2,000 pounds an acre and contained 22.5 per cent protein. These results were obtained on rather poor land after it was limed and otherwise well fertilized. This demonstrates that Balbo rye will give both quantity and quality when given proper soil conditions.

The spring growth of Balbo rye gives an almost fabulous amount of high-grade pasturage. About the middle of March the spring growth, in southern Illinois, amounted to 4,100 pounds an acre (dry basis) and contained 610 pounds of total protein.

By the middle of April this growth expanded to over 7,000 pounds of green material (dry basis) and contained over 800 pounds of protein.

The 4,100-pound growth would supply 20 cows on one acre for 7 days. A 10-acre patch of this rye would take care of 40 cows for over a month and give them one of the best pastures available at that season (March-April).

On the percentage basis, Balbo rye contained nearly double the protein in the fall growth compared to that in the spring growth. This was largely due to more rapid growth in early spring.

The early fall growth ranged as high as 35 per cent protein in early October and by early December, the percentage had declined to 25 per cent protein.

Beginning in early March the protein ranged from 18 to 20 per cent and by the middle of April the amount was down to 10 to 14 per cent protein. These percentages were obtained with rye grown on land which had been limed previously and at seeding time was given rather heavy applications of fertilizers, especially nitrogen.

A desirable fertilizer for Balbo at seeding time would be 400 pounds of 0-20-20 and then 200 pounds of ammonium nitrate or 300 pounds of ammonium sulphate. These amounts would give around 60 to 70 pounds of nitrogen an acre for the fall growth.

If a 20-20-20 fertilizer is used, this could be put on at 300 pounds an acre and give the desired amount of nitrogen for a fall application. The land should be limed or have been limed previously because fertilizers are much more effective and profitable when used on limed land.

Balbo rye, being a winter variety, may be seeded in late August, if the ground is not too dry and hard to get a good seedbed. It may be seeded in late August or September at any date when the late summer and early fall rains will permit. The earlier it is seeded the longer will be the fall pasture season. The rye may be seeded in late October, but such late seeding might not supply much fall pasture, although it would come on for early spring grazing.

The rate of seeding is usually six to eight pecks an acre. The crop seems to flourish a little better when the seed is drilled. Also, a large part of the fertilizer may be put on with the drill.

The drill rows can be contoured easily which is also important for a crop that is to stand over winter.

HAVERLY THE BULK MILK COOLER THAT PROTECTS YOUR INVESTMENT

Dairy farmers make a big investment in land, herds, buildings, and equipment in order to produce good milk.

Haverly Bulk Milk Coolers protect this investment by providing the dependable, continuous cooling that maintains low bacteria counts and assures good milk flavor and high butterfat content.

Copper is the key to Haverly's unique cooling advantages. Copper cold walls and exclusive heat exchangers draw heat from the milk. Fast one-step cooling brings milk temperature down to 36°. Then copper heat exchangers continue to carry heat away from the milk — keep temperatures going down — never up — between milkings.

When additional milkings are added, Haverly maintains a blend temperature of 45° or less.

Ask your dealer about Haverly's low down-payment, long-term pay plan. It's easy to buy the one bulk milk cooler that gives you full-time milk protection and makes your other investments pay off.

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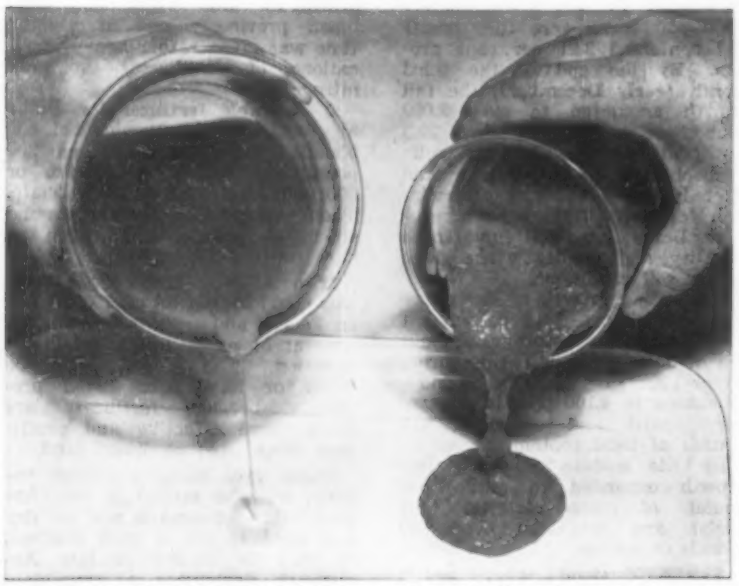
Metalware for the Dairy Industry and Waste Receptacles

What we know about bloat

(Continued from page 295)



FROTHY OR FOAMY describes the contents taken from the rumen of a bloated animal, right, while normal rumen fluid is seen at left.

indicates that spraying a small amount of vegetable oil (particularly peanut oil) on the pasture at the rate of about 3 ounces per animal per day reduces or eliminates bloat.

The oil must be sprayed on the forage shortly before grazing. Except under ideal weather conditions (when longer periods can be employed) the animals must be placed on a new (and freshly-sprayed) plot each day. Under this system "back grazing" is not recommended and may be dangerous if there is a fair amount of unsprayed regrowth

Work at Iowa State College during the past two years has shown that sprinkling crude soybean oil on green chopped forage (soilage), at the rate of ¼ pound per 1,000 pounds animal per day, effectively controls bloat. Several other animal and vegetable oils also seem to be effective.

In other studies various oils have been added to the grain fed to cattle just prior to being put on pasture. However, it was found that the effect of the oil did not last for more than about 4 hours except when high levels of oil (1 pound or more per day) were fed.

Weight gains of animals at Iowa State College fed ½ pound of soybean oil or lard oil (a water dispersible product derived from lard) daily were considerably greater (½ to ¾ pound per animal per day) than those of animals receiving no oil. Perhaps this was due in part to the extra energy supplied by the oil. But since they bloated less, they probably consumed more pasture forage.

The use of oil or fat at the ¼ pound per day level should have little effect on milk production or milk quality (if soybean oil, corn oil, peanut oil, lard, or tallow is used). Continuous feeding at high levels may affect milk flavor, depending on the oil or fat involved. A recent report from New Zealand states that milk production was not changed significantly by spraying pasture with about 0.7 pound peanut oil per animal per day.

Oils, particularly water-dispersible types, added to drinking water will reduce pasture bloat. However, the amount needed is high since consumption of water (and oil) is quite erratic due to variations in moisture content of the forage, temperature, and other sources of water such as dew and rain.

The effects of oils and related substances on feed-lot bloat are less clear. Limited observations indicate that the oils may not be so effective as for pasture bloat.

Antibiotics may help . . .

A number of antibiotics have been used with varying success in bloat control. Penicillin, which has received the most attention, often reduces bloat when first added to the ration. However, the effect appears to be transient. That is, the bloat-reducing effect seems to diminish or disappear after the antibiotic has been fed for a time. In some tests this period has been about 10 days.

Therefore, penicillin may have its greatest usefulness in short-term feeding. Also the penicillin must be consumed at a fairly uniform rate if it is to be of any value. Furthermore, exposure to moisture (and saliva) causes deterioration of penicillin. This is of importance where the antibiotic is fed in salt, where consumption frequently is highly variable and exposure to moisture and saliva is difficult if not impossible to prevent. The common levels of feeding (75 to 100 milligrams per animal per day) usually do not cause animals to go off-feed although higher levels may.

Limited observations indicate that antibiotic feeding is not very effective against feed-lot bloat.

Other products promising . . .

Detergents have been used to some extent to control bloat and under some circumstances may be quite effective. However, the large amounts required and the unpalatability of most of these compounds limit their use.

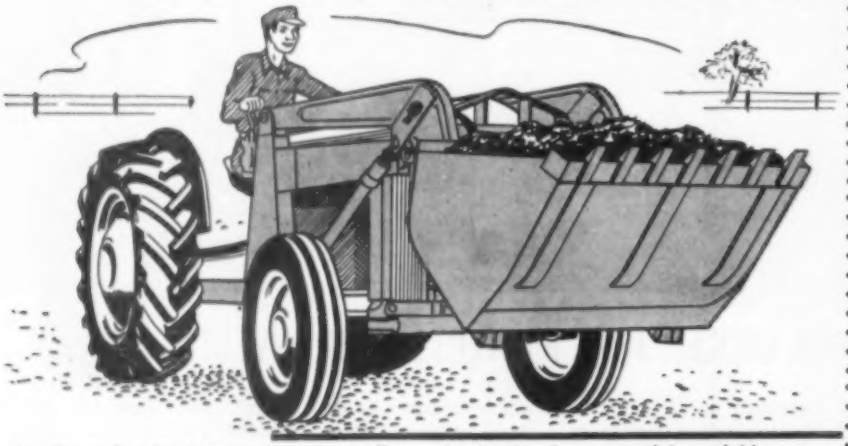
A number of other anti-foaming agents such as methyl silicones and various products derived from fats and oils have been used on occasion as preventive agents in both pasture and feed-lot bloat. Problems of feeding and cost often are limiting factors in their use.

Recently, it has been reported that feeding linseed meal reduced bloat, presumably because of its mucin content. Undoubtedly, many of these materials warrant further investigation.

At one time or another, almost every weather condition imaginable

what's it worth | TO FINISH JOBS WHILE THE TIME IS RIPE?

the DAVIS LOADER
IS A YEAR 'ROUND PERFORMER



The Davis Loader is not a "one-season" machine. It will save you hours – and save your back – all the year 'round. It will help you do chores, complete repair jobs, and wind-up maintenance work "on time" during the off-season. It serves in many ways in handling crops, produce, and supplies during the marketing season. Chances are, you will find more jobs around your place to do with a Davis Loader than with any other implement. The Davis Loader was designed as a multi-purpose machine. It has built-in stamina for years of dependable service, and its many quick-change attachments let you handle job after job with ease!

Davis is always the one that others follow for quality, performance, and versatility. Rugged, box-frame construction, superior hydraulics, "step-in" design plus quality fabrication make it a better buy – pound for pound and dollar for dollar – than any loader at any price!

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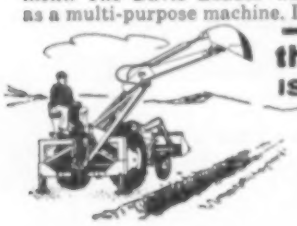
For the name of your nearest dealers call Western Union by number and ask for Operator 25 . . . or send coupon. *Please specify make of tractor.*



the DAVIS BACKHOE
IS BEST FOR FARM USE, TOO...

The Rugged Davis Backhoe has many farm applications – digging laterals and septic tank holes, building foundations. Because it can dig at right angles it is ideal for cleaning irrigation canals, roadside ditches. Also can dig flush alongside buildings, fences, etc.

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Davis Backhoe_____to fit a_____tractor.
NAME_____
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has been reported to increase bloat. Perhaps some of them do have an effect. Hot, dry weather results in a less lush forage and also reduces appetite.

Rain or dew on the pasture forage may in some cases increase bloat, but the presence of such moisture on the plant is of minor importance. Severe bloat occurs frequently in the afternoon when there is no dew or rain on the forage. In many cases, the severity of bloat in the afternoon has been observed to be greater than that in the morning.

Adequate soil moisture is essential for rapid growth and lush forage. In this respect rainfall is related to bloat. Frequently, the incidence of bloat increases substantially from 1 to 10 days after a fairly heavy rain.

Although bloat may occur more often at certain times of the year in a particular area, the combination of rainfall, temperature, and other conditions determines whether the lush forage most likely to cause bloat will be produced.

Plant components studied . . .

Several components of legumes that have been, and are being, investigated include saponins, alkaloids, sugars, non-protein nitrogen compounds, organic acids, proteins, and various minerals. Recent work at Iowa State College shows that there is no clear-cut relationship between sugar, non-protein nitrogen, organic acid, potassium, phosphorus, or total ash content in legumes and the bloat-producing ability of the plant.

It has been suggested that a low phosphorus level in legumes increases the likelihood of bloat. However, severe bloat has been caused by alfalfa with a high phosphorus content as well as by alfalfa low in phosphorus.

Certain legume proteins are being studied because of reports which suggest a possible involvement of these proteins in stable foam or froth formation. The saponin and alkaloid relationships, if any, have not been clarified. It seems probable that several plant components are involved in the production of a stable foam. However, specific relationships of the various plant components to bloat still have not been demonstrated.

Acute bloat must be treated promptly if death is to be avoided. In the late stage of severe bloat, a few seconds delay in treatment may make the difference between life and death.

If the bloat is not too severe and if time permits, the first step logically is to remove the animal from the pasture (or other feed causing bloat). In moderate cases the condition sometimes can be relieved by moving the animal about slowly, by getting the animal in a position where the front feet are higher than the rear, and by placing a "bit" in the animal's mouth. A veterinarian should be summoned, but time limitations may make the prompt use of other treatments essential.

When using stomach tube . . .

In more severe cases or when the animal does not respond to the above treatments, a stomach tube should be used in an attempt to provide at least temporary relief. A short length (7 to 8 feet) of garden hose can be used, but a stomach tube with a larger opening is preferable.

The curvature of the stomach tube should be upward when it is passed through the mouth and esophagus and into the rumen. This minimizes the possibility of passing it into the trachea (wind pipe) and points the lower end upward so

SEVERE BLOAT evidenced. Urination and defecation frequent; anus protruding due to extreme pressure.

it will go to the top of the rumen, thus permitting the removal of any free gas present.

Oils or other defoaming agents can be administered through the tube. About ⅔ cup of animal or vegetable oil (preferably in water-dispersible form) frequently will break the foam in the rumen and permit removal of large amounts of gas through the stomach tube or by belching. Care must be taken to keep the stomach tube open since the flow of gas is likely to be stopped by semi-solid rumen contents.

Animal or vegetable oils are preferable to turpentine and kerosene since the latter have undesirable effects on rumen function and may cause the animal to go off-feed for a few days.

Other methods of treatment . . .

One alternative method to the use of the stomach tube is the administration of the defoamer by drench. This requires considerable care, however, because of the danger of introduction of the material into the trachea (and lungs).

Another alternative for administration of a defoaming agent is the injection of the defoamer directly into the rumen. This can be done with a large hypodermic syringe fitted with a long needle. Care must be taken to be sure the opening of the needle is within the rumen before the agent is expelled, if complications are to be avoided.

When none of the above treatments is effective it may be necessary to resort to a trocar-cannula. Even this is not always effective since the cannula can easily be plugged by foamy ingesta. Sometimes this can be corrected by administration of a defoamer with a syringe through the cannula. If not, a knife should be used as a last resort to open a large hole into the rumen and permit passage of a part of the foamy mass.

It is obvious that much more information is needed before bloat can be controlled effectively. However, a great deal of research is being done on this problem and there is real promise of a much better understanding within the next few years. **THE END**

If you have an electric livestock water tank heater, be sure it is properly grounded.

Needed:

"General Practitioners" in Transportation

Today, public policies place artificial and severe restrictions upon the opportunity of any one form of transportation, such as railroads, to serve the public through the use of other means of transportation, such as that by highway, waterway or airway.

Yet, in other industries, diversification of products has become common, and has proved beneficial both to those industries and to the public.

Why shouldn't our transportation agencies, too, be allowed to benefit by diversification?

Clearly, diversification would be to the advantage of the nation's shippers. They could then arrange for their transportation through a single transport company which could utilize any or all means of carriage needed to do the particular job at hand most efficiently. That's why the railroads ask for removal of present artificial limitations.

They seek only the same opportunity as anyone else to enter into other fields of transportation. Then they could become "general practitioners" in transportation — using a wide variety of facilities to serve you more efficiently.

Isn't this common sense?

ASSOCIATION OF AMERICAN RAILROADS
WASHINGTON, D. C.

NOW! NEW
for MASTITIS!
Gargon
(Squibb Thiostrepton-Neomycin in Plastibase.®)
from SQUIBB

GARGON CONTAINS
THE NEW SQUIBB ANTIBIOTIC
THIOSTREPTON
TO PENETRATE THE
MASTITIS
"RESISTANCE BARRIER"

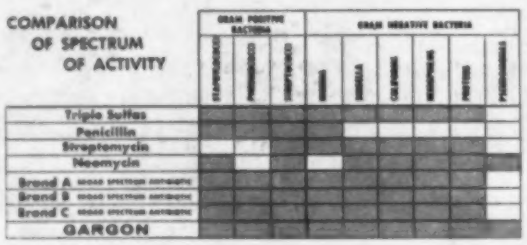
THE INTRODUCTION OF GARGON is an event of tremendous significance for dairymen.

Gargon contains the new Squibb antibiotic, Thiostrepton. Gargon is formulated to attack all types of mastitis-causing bacteria—*even bacteria which have become resistant to the antibiotics previously in use.* By penetrating the mastitis "resistance barrier," Gargon enables you to clean up cases of mastitis which other antibiotics are unable to control, yet Gargon costs no more than ordinary mastitis products.

GARGON ELIMINATES "HIGH DOSE" HAZARD. With Gargon, you can treat both chronic and acute mastitis with a *completely safe, low-level* formulation. Gargon gives you a broader spectrum of antibacterial activity than any single broad spectrum antibiotic available today. Gargon is fast, effective and economical, yet cannot harm the most delicate udder tissue.

Gargon Attacks Gram-Positive and Gram-Negative Bacteria

The chart shows that Gargon (Squibb Thiostrepton-Neomycin in Plastibase.®) gives you a broader spectrum of activity than either of the 3 known broad spectrum antibiotics—broader than streptomycin, penicillin or the triple sulfas. Gargon is the newest broad spectrum formulation on the market today.



NOW AT YOUR DRUGGIST!

Don't take chances with mastitis! Ask your druggist for Gargon in the handy 12-syringe BARN BOX. You save time and money when you buy by the dozen!

FREE! NEW BOOKLET ON MASTITIS

Every dairyman should own one! Tells how to detect, control and help prevent this profit-destroying, vicious disease, plus full facts about Gargon. Send for your FREE copy today!

For accurate diagnosis of mastitis, consult your veterinarian.

SQUIBB, *Veterinary Department*, 745 Fifth Avenue, New York 22, N. Y.

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SQUIBB A NAME YOU CAN TRUST

Gold in the sugar bush

New gathering and processing ways make it possible to gross $150 - $250 per acre of maples.

by Buckley Maits

MAPLE INDUSTRY is developed in "A". Can be extended to "B". Total area coincides with more intensive dairy regions in this section.

WITH milk prices still tight, many a dairyman last year turned to the sugar bush as a highly profitable sideline. Some claim they made as much in six weeks tapping maple trees as they did in six months milking dairy cows.

Prime examples of this back-to-the-bush movement are our two biggest dairy states, Wisconsin and New York. In each, a highly-respected forester from the state agricultural college is sparkplugging the shift with an impressive array of returns-per-hour statistics.

One of these men is Fred Winch, veteran extension service forester for Cornell University, who headquarters at Ithaca, New York, when he isn't tramping the woods around somebody's sap house.

Fred's pitch to dairymen is that although most of them can only hope to earn 50 to 70 cents an hour milking cows at present dairy prices, they can bring home $2 to $4 for the same time spent collecting and boiling syrup. What's more, he has the results of a rather comprehensive survey of maple producers made three years ago which gives his statements a highly creditable ring.

Winch's counterpart in Wisconsin, Fred Trenk, University of Wisconsin farm forester, says that there is such interest among dairymen there in a commercial maple sideline that 50 to 70 men apiece attend each of the 10 Maple Institute meetings he holds about the state every year.

All told, there are some 1,200 to 1,500 commercial maple producers now at work in the Badger state, Trenk reports. They hang buckets for from 75 or 100 trees on up. Producers George Klement of Polar and Adin Reynolds of Amiva are two of the biggest, each hanging more than 20,000 buckets a year.

New York's Fred Winch reports about 1,500 commercial maple men in his state, some of them former dairymen who have gotten out of the dairy business altogether and gone into the syrup, maple cream, and maple candy business. Largest single producer in the Empire state is reported to hang 10,000 buckets.

Costs of getting started . . .

Investment needed to get into the maple business is estimated by Winch to range from $500 to $4,000, depending largely on how much money goes into the evaporator. Trenk figures the cost in his state at $2½ to $3 a spile or tap. Winch says it costs $450 to $750 alone for the materials to build a sugar house if you evaporate your own sap (as most New Yorkers do) instead of having one of the neighbors do it (as some Wisconsin farmers do).

Range of commercial maple production, according to Dr. C. O. Willits, the U. S. Department of Agriculture's famed maple research man, is from western Maine to the borders of the Dakotas. It includes most of what is known as the northern dairy region and embraces a semi-circle around the Great Lakes whose most southerly point touches central Kentucky.

The sugar or hard maple, Acer saccharum, is the best producer, foresters say. However, the black maple also is tapped in western New York, Ohio, and Michigan, and red maples in a few places. A commercial tree is anywhere from 25 to 100 years old and the minimum size for tapping is 10 inches. A tree 15 inches or better can stand 2 tapholes; one 20 inches or more, 3 tapholes; and from 25 inches on up, 4 tapholes.

Present production of an estimated 12,000 commercial producers in this belt runs from 2-million gallons of syrup a year to 3-million, depending on what kind of a season it is. On the average, each maple man taps about 40 trees to the acre and has about 10 acres of sugar bush.

Taphole yields quart of syrup .

Although the amount of sap to make a gallon of syrup varies greatly tree - by - tree, grove - by - grove, and season - by - season, it takes, on the average, about 40 quarts of maple sap to make a quart of maple syrup. A taphole will produce, on the average, about 40 quarts of sap or 1 quart of syrup per season.

Contrary to what many people think, the sap is almost tasteless and colorless until it has been through the evaporator.

Vermont still leads in maple production but Fred Winch says that New York is pressing it closely. Estimates are that about 6 to 7 million trees are being tapped in the maple belt now. That's only 2 per cent of the tappable trees, with Minnesota, Wisconsin, and Michigan having the greatest future tappable potential.

With present know-how on gathering and processing of the sap, people like Willits and Winch estimate that an acre of sugar bush will gross $150 to $250 for its owner during the six-week season. They say that recent improvements in technique have cut the average time for producing a gallon of syrup to 65 minutes as compared to the 127 minutes it took less than 10 years ago.

In Winch's opinion, some of the more important of these improve-

ments include the knapsack-type motorized tree-tapper, tapping early in the season to get more sap per bucket hung, use of plastic lines and sap bags for sunlight sterilization instead of buckets, larger buckets where buckets are used, more holding tanks throughout the orchard (plus pipelines to these holding tanks) and, perhaps most important of all, better and more rapid processing methods.

Many farmers (in New York at least) are using pump systems along the lines of the one developed by Earl Arnold, engineer at the University of Vermont. This is a pump operating off the tractor power take-off which makes it possible to suck sap from the tree bucket to the gathering tank through a one-inch plastic hose. So, instead of wallowing from tree to sled through the snow with each bucket, the operator simply sticks the hose in the bucket at the tree and lets the pump do the work.

Pumps also are being used to get the sap from tank to truck and from truck to storage.

Farmers who are working on such pumping systems say that they should be able to handle a bucket from tree to tank every 20 seconds to pay their cost. But, since gathering sap accounts for more than 40 per cent of the cost of producing syrup, anything that can cut the time of this slushy, wet job is money in the bank.

Although horses are still widely used for collection because they get around the woods so well, the development of pumps like Arnold's, plus the practice of using the big roadside trees or open pasture trees (plus the high upkeep of keeping a team) is speeding the swing to tractors.

Improvements in methods of evaporating syrup at the sugar house in recent years include the greater use of oil burners for steady even heat under the evaporators. Also, the day when farmers checked their vats by observing the sheeting of syrup from the scoop used to skim the evaporator is fast giving way to the hydrometer and the thermometer. These precision instruments can tell much better than even the most experienced eye whether the syrup is boiled to the desired consistency.

Discovery that maple flavor and coloring are developed in the final process of boiling is a further technological advance.

Another of the new things coming in the maple business is a better selection of trees and tree strains, "culling" the low-producing ones.

Trend to central boiling . . .

Also, there is some trend back to the idea that the boiling job can be done in a central country receiving plant by means of small milk plant evaporators or pasteurizers. A big dairy company in New England is reported interested in evaporating syrup in some of its country milk plants when milk receipts are off (as they usually are during maple season). This has been tried before, although not too successfully.

In New York, several dairy producer-dealers who also used their milk pasteurizers to partly process maple syrup have now gone to steam evaporators and to the more efficient setup of using several evaporators in tandem and finishing off in one pan.

One of the most important, and also most controversial discoveries in maple, has been the maple syrup extender developed by Dr. Willits at the U. S. Department of Agriculture research station at Wyndmoor, Pennsylvania. It operates somewhat on the principle of frozen orange concentrate where three parts of water are added to one part of concentrate for the family's morning orange juice.

Dr. Willits' process, called a "high-flavor" process, makes it possible, through a heating process of the pure maple syrup, to develop an extender which is claimed to have 4-fold the original flavor. Thus, one gallon of Dr. Willits' syrup extender, added to three gallons of low-priced corn or cane sugar syrup, will produce a maple syrup blend that, in Dr. Willits' opinion and that of many others, retains the normal maple flavor. Also, it will go much further at a lower price in flavoring ice cream, baked goods, candy, and cured meats.

Some of the Vermonters and maple men in other parts of New England are still not too happy about the extender, claiming that the taste of the pure maple is lost and that the result is little better than many of the ordinary blends of maple and cane or corn syrup now on the market. But New York and Wisconsin producers are reported thinking the extender will be a boon to the industry by combating imitations and spreading the taste for true maple among many millions of consumers who do not feel they can afford the $2 a quart or $6 to $6.50 a gallon that maple producers get for the better grades of their pure syrup.

There is some tendency in Vermont, in fact, to be a little pessimistic about the future of the maple industry as well as the extender. Perhaps this is because the number of trees tapped there has dropped sharply the past 20 years.

Using pump systems . . .

Elsewhere, though, there is rampant optimism about the future of maple. Dr. Willits is among the more conservative when he says that there is a possible increase in consumption of 25 per cent in the offing. To men like Fred Winch and Fred Trenk, and all the New York and Wisconsin dairymen and maple producers who believe in them, the maple industry at present is in something of the same position as the broiler-chicken industry 25 years ago, ready for a vast expansion into the eating habits of America.

Even now, say Winch and Trenk, there is no surplus of the better grades of maple syrup, or of cream and candy. Wisconsin and New York themselves, have to import it. The market for maple cream, which brings producers twice or more what the syrup does, is in swaddling clothes and could snowball overnight with a little promotion, they believe. Furthermore, says Winch, there was only one maple producer-distributor of any size in New York 10 years ago; now there are 15 to 20.

Dr. Willits has been working with the department of dairy industry at Cornell University to make use of his high-flavor process for lower grades of syrups to make into ice cream mixes. The possibilities of maple flavoring for all kinds of foods has hardly been touched, he thinks.

And there's no shortage of trees to tap, or dairymen to tap them, the maple experts point out. That's why they're urging more and more dairymen to consider maple as a commercial sideline.

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Answers to your FERTILIZER questions

by A. J. Ohlrogge

Are row (starter) fertilizers essential for top corn yields?

Practically all corn should receive starter fertilizer. Even on very fertile soils, a small amount of fertilizer starter helps assure even stands and uniform early growth, especially during wet, cold springs. Under attack of seedling insects, fertilized plants are better able to survive.

The author is an associate professor of agronomy, Purdue University.

Are starters more important in one area than another?

Yes. In the northern part of the corn belt, starters become increasingly important. They can make the difference between wet and dry corn at harvest.

What should be in the starter?

Nitrogen and phosphorus are of first importance. They cause the roots to develop in the fertilizer band. A 1 to 4 ratio of nitrogen to phosphate looks very good. An example of 1 to 4 (N - P_2O_5) ratio is a 5-20-20 fertilizer. Most soils need potash in the starter. On a few soils, trace elements are essential for best yields. The minor element deficiency areas are well outlined by local experiment station agronomists.

Where should corn and soybean starter be placed?

Off to the side and below seed level. Two by two (two inches to the side and two inches below seed level) is a good thumb rule. If your single disc applicator gives you trouble at this depth, move it up to where it will do a good job. At seed level is much better than putting it above or with the seed, as is done with the old split boot fertilizer attachment.

How do you get placement below and to the side of the seed?

Most new planters are now equipped with a single disc fertilizer attachment. Many implement manufacturers have single disc applicators which can be attached to your old planter.

What is the payoff for good placement of starter fertilizer?

Uniform stands, with vigorous, even, early growth makes weed control easier. Stands at harvest are then better. Yield increases for good placement have averaged 3 to 5 or more bushels of corn per acre. Some years, placement is much more important than others. Placement has made the difference between replanting a field of corn and a good stand. The payoff can be mighty big.

With good placement, how much fertilizer can you add in the row?

Soil maintenance requirements for phosphate and potash can be entirely met through row applications in grain systems of farming. Enough can be added to gradually build up the fertility level. For a quick build-up, broadcast applications are needed.

What about livestock farms?

With good manure conservation, row applications of well-placed fertilizer will maintain and gradually build up the fertility level. Poor management of manure makes it difficult to meet the heavy potash drains of corn silage and alfalfa hay. Phosphorus can be taken care of in the row but it will need to be supplemented with a high potash fertilizer applied broadcast.

Should I buy my fertilizer in bulk?

This will depend on your farm setup, prices, and many other factors. Under most situations, solid starter fertilizers can best be handled in bags. A few farmers with large acreages have devised special equipment for easy transfer of bulk fertilizer to the planter box. Broadcast fertilization is ideally suited to bulk handling either by applicator truck or a pull-type farm spreader. Trucks with tilt beds permit sliding the fertilizer directly into the broadcaster.

What are fertilizer blenders?

There are several types of blenders. The term is applied to establishments which sell fertilizer materials or mixtures of materials which are prepared simply by running the weighed materials through a mixing device immediately before or after sale to the buyer. The blends are mechanical mixtures of a nitrogen, phosphorus, and potassium salt. They are almost always delivered in bulk.

Where can blenders best be used?

They are usually best suited for immediate broadcast applications. Segregation during transport and application may present problems. However, even distribution is not as important in broadcast applications as in row applications.

Should the fertilizer be applied broadcast on plowed ground and disced in or should it be plowed under?

This depends on your fertilization program. If your plan calls

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"This imposes the most exacting demand upon the pumping equipment for dependable, trouble-free service. For example, the pump in this system operated six hours, or more, each day for 65 days during a drought. Its delivery rate is 960 gallons per minute at 120 pounds pressure. The application in a tree nursery is unusual, but it definitely shows the pump's importance.

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SYSTEM SUMMARY
(*With reference to the pump shown above.*)
Crop and acreage: Nursery Stock, 75 acres.
Gorman-Rupp Irrigation Pump: Model 55M-IND56A.
Other equipment: 2,000 feet of main-line 6" aluminum pipe; 4,000 feet of 4" lateral lines, in a duplicate system; 24 sprinklers of 40 gpm in each system. Sprinkler spacing is 80 feet. Pipe spacing, 100 feet.
Date installed: June 15, 1957.
Other details on request.

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for building up the entire plow layer to a high level of available phosphate and potash, then it does not make much difference whether you plow it under or disc it in. If you are interested in maximizing the return on the first crop, it is best to plow it under.

Will phosphate and potash fertilizers be leached from the soil?

No. Unusually high rates of potash application on extremely sandy soils may result in some leaching of potash. It will not be severe.

Will broadcast application on frozen ground be washed away?

If surface soil erodes away in winter, then the surface applied phosphate and potash will move with the soil.

Does nitrogen fertilizer leach?

Nitrate nitrogen moves wherever the water moves. It is completely water soluble. Water draining through a soil carries the nitrates with it. When water evaporates from the surface, the nitrates accumulate at the surface. Ammonium nitrogen is absorbed by the clay and organic matter. It does not leach.

How does ammonium nitrogen change over to nitrate nitrogen?

This is mainly a biological process. Soil organisms bring it about.

What factors determine the rate of conversions?

Four factors are important:
1. Oxygen supply in soil
2. Acidity of soil
3. Organic matter present
4. Temperature of soil

All are equally important. Poor aeration (low supply of oxygen), high acidity (low pH), low nitrogen content of organic materials plowed under with the nitrogen, and low temperatures help to keep nitrogen in the ammonium form.

Should I test my soil this spring?

If the soil hasn't been tested for four or five years, it had better be retested this year. The best approach is to test the entire farm, and in consultation with the county agent, decide on a program which best fits soil condition, fertilizer services available, farming efficiency, and financial situation.

Are soil tests 100 per cent accurate?

They accurately measure the amount of phosphate and potash extracted from the soil sample with the extracting agent. This amount has been calibrated against the returns obtained from fertilization in field experiments. They give good indications of the plant food needs.

Why has water solubility of phosphate fertilizers become important the last few years?

The introduction of new processes for fertilizer manufacture has resulted in a few new fertilizers on the market, which have a wide range in water-soluble phosphate. Some may have less than 30 per cent water-soluble phosphate, whereas, others may have over 90 per cent. In older, standard types of mixed fertilizers, practically all had between 60 to 80 per cent water-soluble phosphate.

Which fertilizers are low in water-soluble phosphate?

The high nitrogen grades like 12-12-12 prepared by nitric acid phosphate acidulation process usually are low in water-soluble phophates and, therefore, are not the best for starter fertilizer. All high nitrogen grades are not low in water-soluble phosphate. Some grades made with ammonium phosphate have over 90 per cent water-soluble phosphate. The manufacturer will gladly tell you if he has a highly water-soluble phosphate in his mixed fertilizer.

Where is water-soluble phosphate important?

It is of greatest importance in starter fertilizer on corn and the small grains. For broadcast applications, water solubility has little or no advantage.

Is the non-water-soluble phosphate, but citrate soluble (available) worthless?

Definitely not! It contributes to the total fertilization program and is almost as available to some crops as is water-soluble phosphate. Water solubility is important only for maximum starter effect per pound of added available phosphorus. Fertilization programs using standard mixed fertilizers with 50 to 80 per cent water-soluble phosphate at rates that meet the crop and soil needs will have enough water-soluble phosphate for good starter effect.

What are some advantages of complete liquid fertilizers?

They are easily transferred from field supply tank to planter equipment. Planter equipment has large tanks which eliminate frequent fillings. Liquids are 100 per cent water-soluble.

Can solids match these advantages?

I think so. With a little ingenuity, modern well-granulated fertilizers can be made to meet all the advantages of liquids. They can be 100 per cent water-soluble if necessary. They can be easily transferred in bulk. Granular fertilizer tanks of 1,000 pounds capacity could be mounted on a tractor with gravity flow tubes to the boxes on the planter.

Will liquid-mixed fertilizers run the solids out of business? Will the blenders replace the standard mixed fertilizer manufacturers?

No. It is highly improbable. Each type will find its right place in the American scheme of agricultural production.

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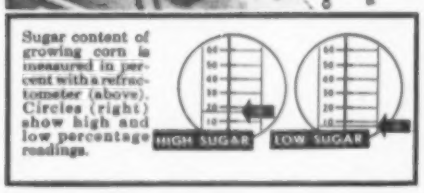

Sugar content of growing corn is measured in percent with a refractometer (above). Circles (right) show high and low percentage readings.

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CINCINNATI, OHIO.....JULY 22-26
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DALLAS, TEXAS.....AUG. 12-16
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Honor F. W. Atkeson

The Kansas Inter-Breed Dairy Cattle Council has cited F. W. Atkeson, professor and head of the Kansas State College department of dairy husbandry since 1935, as a "Kansas dairy leader."

He is the sixth to be named by the council to the state's dairy hall of fame. Honored previously were James W. Linn, W. H. Mott, James Fitch, Karl B. Musser, and G. Fred Williams.

Prior to 1935 Atkeson was head of the dairy department at Idaho and, before that, a field representative for the American Jersey Cattle Club.

Contributions for 4-H

Over 2,000 donors to the National 4-H Club Foundation contributed approximately $500,000 during 1957, according to Norman C. Mindrum, the Foundation's Executive Director. This is in addition to contributions from local sources in the states, including 4-H members, to International Foreign Youth Exchange (IFYE), and to the Share and Care program for the National 4-H Center.

"The contributions from donors enabled the Foundation to carry out the program requested of it by the Cooperative Extension Service through the Foundation's Board of Trustees," Mindrum said.

This program included:

1. The International Farm Youth Exchange under which 124 United States delegates went abroad in 1957, while 176 foreign exchangees came to this country.

2. The development of the National 4-H Center in Chevy Chase, Md., a suburb of Washington, D. C. Renovation of the property will begin this spring and by the end of 1958 the Center will be open for training programs for 4-H members and leaders.

3. The Citizenship Improvement Study. 1957 was the third year of the three-year study to define the qualities within young people that make a democratic citizen and determine what programs will help develop these qualities. Five pilot states, Ohio, Oregon, Puerto Rico, Texas, and Vermont, participated in the study.

4. A broad program in Human Development — Human Relations, which through workshops and consultant help to states, assisted extension workers in developing their skills in working with young people.

During the National 4-H Foundation's first 10 years (it was founded in 1948) private enterprise has contributed more than $3 million to the Foundation, which has used the money to carry out programs requested by the extension service.

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Are your tractors ready to roll for spring work, which is just a few short weeks away?

If they are not in good condition and you are figuring on having some mechanical work done, we suggest that you take them to your local machine dealer at once. They have the time to put them in shape now whereas they may have to disappoint you later on, if you wait until the last minute.

The average American spends about $410 a year for food, or about $1.12 each day. He consumes 356 pounds of milk at a total average cost of $43.60 in one year. In other words, 10.6 cents out of every food dollar is spent for milk.

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ALUMINUM ROOFING SHEETS being applied to a dairy barn in New York. Screw shank nails are used for greater holding power.

Aluminum roofing for dairy barns

It reflects 86 per cent of sun's rays; is lightweight in ratio to its strength; needs no paint.

by H. H. Nuernberger

THE outstanding advantage of aluminum roofing is its ability to reflect 86 per cent of the sun's rays.

The use of aluminum roofing has additional advantages. It is highly resistant to fire and corrosion and maintains an excellent appearance. Aluminum's high strength in ratio to its light weight eases installation problems. Aluminum roofing needs no paint, saving time and expense.

Aluminum farm roofing products are the roofing and siding sheets of 5-V crimp, 1¼- by ¼-inch, and 2½- by ½-inch corrugated sheets. Included are the aluminum accessories to equip these sheets for ridge roll, gambrel fittings, and wall flashing, side wall flashing, and roll valley stock.

Length and thickness . . .

Roofing sheets are available in lengths of 1 foot intervals, ranging from 6 to 12 feet long. They are offered in two thicknesses, .019-inch and .024-inch.

You also have your choice of plain or embossed aluminum roofing. This selection, of course, rests with your preference of appearance. However, embossed roofing reduces glare and tends to increase the rigidity within the sheet.

Corrugated roofing sheet has two sizes of corrugations, 1¼-inch pitch by ¼-inch depth and 2½-inch pitch by ½-inch depth. These sheets are available in 26-inch and 48-inch widths. Another popular sheet is the 5-V crimp, which offers 5 inverted "V's" of ½-inch height for side laps and general appearance.

Both the 1¼-inch by ¼-inch corrugated and the 5-V crimp sheets are considered as roof coverings and, therefore, an almost solid deck is recommended. The spacing between the nailing girts should be less than 6 inches.

Supports heavy loads . . .

The 2½-inch by ½-inch corrugated sheets, employing a larger cross section, have structural ability and are able to support loads over a greater span. A 24-inch spacing between nailing girts is permitted for the .024-inch-thick, 2½- by ½-inch corrugated sheet. This spacing is not restricted to the 24-inch span because of the stress induced by high winds or piling snow.

It is only restricted because of the concentrated load of a man's weight striking between the nailing girts. If never walked upon, the span could be increased to 36 inches and be adequate for a 30-pound per square foot roof load.

Aluminum roofing should be fastened with aluminum nails or screws having a black neoprene washer. Other nail and washer materials can stain the aluminum roof.

The screw shank aluminum nails are recommended because of their increased withdrawal resistance in wood. Ideally, the nails should penetrate the wood nailing girt for the 1-inch depth. If heavier wood is employed, a longer nail should be used for greater holding power. Aluminum nails are obtainable in 1¾-inch, 2-inch, and 2½-inch lengths.

Nailing an aluminum, or any metal, roof is a relatively minor part of the total expenditure. However, it is also the most important. A minimum of 100 nails per 100 square feet of roofing is recommended, and they should be uniformly distributed. Research studies have established that this ratio is adequate to hold the sheet to the roof in the highest wind.

Practices to avoid . . .

Roofing sheets should be stored in a dry area until erected. Since the sheets nest tightly together, their appearance can be affected if water is trapped between them.

Aluminum roofing and siding should not be applied where it might come in direct contact with wet straw, manure, and so forth. Such continued contact with a wet fibrous material can cause corrosion on the aluminum sheet. Ammonia fumes, however, need not be feared for they have no effect on the aluminum roofing and siding.

The full life expectancy of an aluminum roof is still unknown. Many of the industrial buildings roofed with aluminum in the early 1900's are still in good service. Conversely, present-day aluminum roofing products should not be judged by the performance of aluminum roofing available immediately after World War II. For this aluminum roofing alloy was a new product at that time, and made from battle scrap, believed to be adequate for farm roofing.

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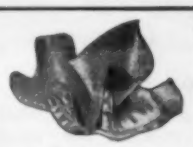

Permasoft® Uddersponge is bacteria resistant—won't mildew nor sour. No objectionable odor at any time. Can be boiled or placed in any standard sterilant. Won't shred nor crumble. Always soft and flexible, wet or dry. Holds lots more water than rags or paper. Washes and warms the udder quickly, thoroughly. The cow loves it. Upgrades your milk. Costs less than even paper towels. Users report up to 800 cleanings with one Permasoft Uddersponge.

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DAIRY FARM HOME

Spring is here

Pretty salads make an appearance to herald the arrival of spring. Here are fresh ideas for using up ingredients you already may have on hand.

by Marian Pike

SPRING is flirting with us in earnest now, and it's fun to surprise the family with delicious salads and other treats.

The appetizing biscuits, pictured, utilize the preserves you probably have on hand as an ingredient rather than a spread. They are something special to serve at suppertime. On the road to culinary distinction, cooking with jellies and preserves is the easy way to add the flavor of fruits to many popular dishes. It is also a way to produce novel variations of favorite foods.

Take a look at the tasty prune relish. It will add spark to favorite meat dishes. Prunes are a food item that has gone down, not up, in price over the past few years. Prunes add color and accent on the food plate; add interest to economy dishes and extend portion servings. They have year 'round availability and good nutritional qualities.

The almond and cherry ring is a fine flavor and texture combination. Crispness and flavor are mated with the valuable nutrients of cottage cheese. A valuable source of protein and calcium, a favorite of "calorie-watchers," cottage cheese is a natural food companion with fruit flavors for warm weather salads. Of course, this colorful salad is good the year around.

Another interesting salad combination is found below, the Maine salad bowl. The tangy pineapple, the crisp lettuce, the smooth cottage cheese, and the fragrant sardines make an appetizing and refreshing dish.

Embellish it with the piquant dressing for which the recipe is given, or combine it with mayonnaise or salad dressing with whipped cream folded in it.

Peach upside-down biscuits

Butter
Peach preserves
10 ready-to-bake biscuits, your own, from a mix, or packaged

Generously butter 10 large muffin cups. Place 1 tablespoon of preserves in each. Cover with a biscuit, and bake in a hot oven, 475 degrees, for 8 to 10 minutes. Turn out upside down immediately.

East Indian prune relish

2 cups prunes, cooked pitted, chopped
3 tablespoons light brown sugar
3 tablespoons cider vinegar
¼ cup chopped, candied ginger
¼ cup chopped onions
½ teaspoon chili powder
¼ teaspoon salt
1 teaspoon mustard seed
3 tablespoons diced pimiento
¼ cup chopped walnuts

In a sauce pan, combine prunes with brown sugar, vinegar, ginger, onions, chili powder, salt, and mustard seed.

Bring to a boil and simmer 15 minutes. Add pimiento and nut meats. Chill before serving with meat as a relish.

Maine salad bowl

1 head crisp lettuce
1 can pineapple chunks, drained
2 cups cottage cheese
3 cans (3¼ or 4 ounce) sardines, drained
Pimiento and other garnish
Piquant French dressing

Line large salad bowl with lettuce leaves and fill bottom with broken-up lettuce. Pile pineapple chunks in ring around outside edge of bowl. Lightly mound cottage cheese in ring next to chunks. Fill center of bowl with sardines, whole or broken as desired. Garnish with strips of pimiento and slices of olive. Serve with French dressing and additional salad makings, such as celery, carrots, or radishes. Oven-crisped crackers are good accompaniment. 4 to 6 servings.

Piquant French dressing

1 cup salad oil
½ cup vinegar
1 teaspoon salt
¼ teaspoon sugar
½ teaspoon paprika
¼ teaspoon pepper
½ peeled garlic clove, sliced thin

Combine all ingredients in glass jar with tight fitting cover. Shake until thoroughly blended. Chill. After 3 hours remove the garlic. Shake well before serving. Yield: 1½ cups.

Almond cherry ring

2 packages cherry gelatin
½ cup sugar
¼ teaspoon salt
2½ cups (1 No. 2 can) Bing cherries
3¼ cups water with cherry juice
¼ cup lemon juice
½ cup almond halves
2 cups cottage cheese

Mix together gelatin, sugar, and salt. Drain cherries. Add water to cherry juice to make 3¼ cups liquid; heat to boiling.

Add liquid to gelatin mixture; stir until mixture is thoroughly dissolved. Stir in lemon juice. Chill until mixture is partially thickened. Fold in drained cherries and almonds. Pour into a 2-quart ring mold and chill until firm.

Unmold on crisp greens and fill center with cottage cheese. Garnish with mint. Makes 8 servings.

From Day to Day

by Lois J. Hurley

SPUTNIKS, U. S. Explorers, missiles, and satellites in general have made us all conscious of our spinning world and whirling neighbors. If you want to get your vague thoughts on the subject somewhere near reality, get up early some morning and watch daybreak.

Sunsets are breathtakingly beautiful and the sight of a full moon swimming up out of the night sky has been theme material for many a song and sonnet. But watching daylight come to a dark, mysterious world is truly awesome.

First, there is a subtle softening of the darkness; it turns a sort of black-gray. Then, in the eastern sky, low down to the horizon, a band of light appears . . . grows . . . expands. If it is summer, the birds awaken and start to chirp softly at gray-light; full song swells from their throats as the light grows. If you're in the country, the roosters crow to announce the dawn.

The band of light turns pink, orange-yellow, golden-scarlet. Just the barest rim of a golden sphere begins to peep over the rim. It grows bigger; it sends out an exploratory finger or two of rays; it comes into full view. The sun is up!

You've actually seen the earth turn . . . away from the dark to the direction of the sun, which has not "come up" at all, of course. You've stood solid and stationary, thanks to gravity, with no consciousness of the terrific spinning rate at which you were moving. But, we're freeing ourselves of this stabilizing force and soon some of us may go for a space-spin. A recent lecturer I heard told his audience that many sitting in the room listening to him might have grandchildren born on another planet.

But, getting back to day-break. If you own a record player and would like a musical interpretation of this daily miracle, buy Ferde Grofe's, "Grand Canyon Suite." The score is interpreted and you can follow along and **hear** the wonder of the arrival of the light of day. A treat for the whole family, worth the investment of a few dollars.

Too many telephones . . .

Not long ago, a group of women I was with started a discussion about why it takes so long for women to accomplish things. Why must there be so much discussion, dissension, hesitation, uncertainty on just what they **do** want to do, and so forth. I said I thought the reasons for the trouble lay in three simple words: Too many telephones.

Let me make my case: Say, for instance, your Ladies' Aid wants to renovate the lounge of the church. At your meeting you receive the reports of committees on work involved, costs, money available, money still to be raised, etc., etc., etc. You ask for opinions and discussion. Maybe you get good response; it may even become heated. Maybe people are too cautious to stick their necks out by making any positive statements. The things hang in mid-air; you are forced to table it till next meeting.

But what happens when the women get home? They run to the telephone and call each other! One has decided she doesn't like the color of the proposed couch covering; another thinks the drapery material that was recommended won't dry clean. Still another has decided the money should be given to the church school and nothing done to the lounge at this time. Another is sure there is a group trying to "railroad" the thing through without proper consideration given to the wishes of the entire group.

Doesn't that sound too, too familiar? And isn't it a deadly weapon against accomplishment?

I am not, at present, president of any women's group, but I've served several turns in the past. I had one request I always made of my fellow-members after a controversial meeting:

"For a 24-hour period, friends, let us observe **quiet telephone time**. You have all been given ample opportunity to express your views at the meeting; if they change **for better ones**, you will be given another chance to speak next time. What we propose is for the good of all which can only mean we must all work for the good. Private telephone campaigns too often go against this aim and purpose. Let's not conduct any!"

I think such a request got pretty good results; you might want to try a similar one, sometime. If a woman waits 24 hours to air her grievances to her best friends, she may have cooled off and become reasonable and may not make the call, at all.

Violent violets . . .

Never have I had such pots of posies as my African violets yielded through the winter. Stretched out along the ledge of the seven-foot window in the dining room, their luscious purple and pink and mixed bloom formed a cheerful relief to the snow banked high just outside and furnished me with an interest and hope during the long, dragging days of getting over the flu.

Do you **use** your blooming violet plants or do you adopt a "hands off" policy and leave them in their stiff rows for fear that moving them about will do them harm? Maybe it will but I haven't found it so; I've made good use of mine in the following ways:

I've taken three pots of purple violets, set them on gold foil doilies, placed purple candles in brass sticks, and had a lovely centerpiece for a dinner party.

I've an old-fashioned round lamp table with a brass lamp in the center. When company was coming, I've grouped blooming pots of violets around the base of the lamp.

I've a shelf table I use in the double doors between living room and dining room as a sort of low room divider. I've massed these lovely blooming violets on this table, to give a spring-like, frothy look to the entire house.

I've taken some full pots of bloom down to the basement room and set them up on the south window ledge when I was going to be entertaining a group of friends or a committee down there.

In between times, I return the pots to their permanent home on the window ledge, where they continue to bloom and bloom.

Thank you . . . for your many good letters on the use of the clothes dryer and how I might learn to get more and better service from mine. Good points will be gathered from your letters and used soon, in the hopes of benefitting others who have, or plan to purchase, dryers.

4714. Smart fashion with accent on clever collar and slim easy-to-sew lines. Printed pattern in misses' sizes 10 to 18. Size 16 takes 3¾ yards 35-inch fabric. Price 35 cents.

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3. Stimulation of the udder and teats prior to milking by wiping them vigorously with a warm solution of water and a reliable disinfectant. After drying them a period of approximately one minute should elapse before applying the rinsed and disinfected teat cups.
4. Milk about two streams from each teat into strip cup just before applying milker. This opens and lubricates the milk canal and allows inspection for abnormal milk.
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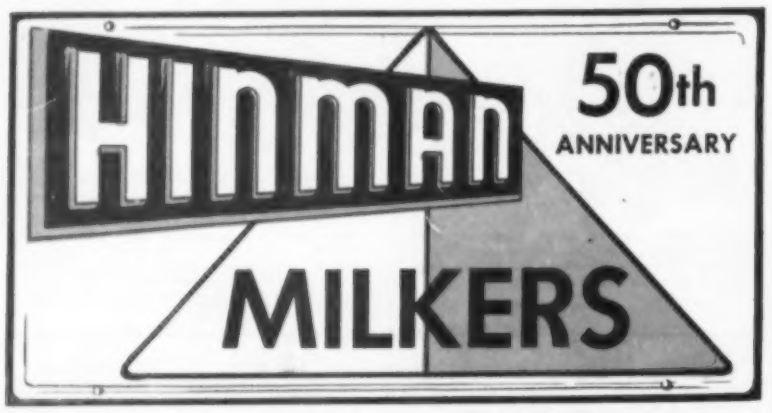

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POULTRY

Joe W. Sicer

Can you pass this brooding quiz?

A good brooding job is a big step toward a profitable year with poultry. Check up on your methods.

When should chicks be started?

That depends on you and your situation. Usually, on general or dairy farms, it is best to get the job of brooding out of the way before the rush of other spring work arrives. Consider, also, the age of your pullets when they start to lay. Pullets ready to house should be housed promptly. Plan your time of chick starting so that housing won't conflict with other jobs, such as combining.

How much floor space should be allowed per chick?

When you are certain you can get the chicks running outside freely by 6 weeks of age, ½ square foot per chick is enough until about 10 weeks. After that you will need supplementary range shelters if you filled the brooder house with sexed pullets. In other words, 250 sexed pullets in a 10 x 12 brooder house can do all right up to 10 weeks if they are running outside by 6 weeks of age. But after 10 weeks, 250 pullets are too many for one brooder house.

When pullets are to be raised in confinement, they need one square foot per bird up to 10 weeks, and two square feet thereafter.

What is a good litter?

A good litter is one which you can keep dry, doesn't pack, doesn't become excessively dusty, is comparatively inexpensive, and is readily available.

Dry corncobs, run through a hammermill with a one-inch screen, are excellent. Wood shavings, when available, are hard to beat. Straw is not as good because it mats together. Peanut hulls, shredded cane fiber, peat moss, and other commercial litters do a good job, and often are not as expensive as they seem.

Start with a 3-to-4-inch covering of litter. Stir it, if necessary, to prevent caking. If needed, add more on top of the old. You will probably need more about the time you turn your chicks outside.

Should litter be covered?

It may not be absolutely necessary, but it is a wise precaution to cover, with newspaper or burlap, all litter inside the chick guard for about the first week.

How many feeders and waterers per 100 chicks?

Start with at least two 3-foot-long, chick-size feeders per 100 chicks. The first feed can be given on clean egg-case fillers, paper pie plates, or chick box tops if you desire, but also put the feeders in at the start filled with feed.

Arrange the feeders spoke fashion around the brooder so they will help guide chicks back to heat.

Use at least two fruit jar waterers per 100 chicks at the start but change shortly to 3-or 5-gallon waterers. The larger founts can be used at the start if you put a piece of rope or old hose in the ring of water so the chicks have something to stand on if they get pushed into the water.

When the chicks are about 5 weeks old, at least three 4-foot-long broiler size feeders should be used per 100. Don't delay this switch to the bigger feeders.

How much ventilation should be given for chicks?

More than many people think. Even at 1-day-old there should be some windows open, taking care to avoid drafts on the chicks. The amount of ventilation will need to be regulated according to the weather, the insulation of the house, and the age of the chicks. If you skimp on ventilation, you will probably have damp litter; and you increase your chances for trouble with respiratory diseases.

Should a coccidiostat be used in the feed?

That depends on your situation. If you have had trouble consistently in the past with coccidiosis, then you will be wise to use a preventive level of one of the good coccidiostats in the feed. If you have never had much trouble and feel you can recognize coccidiosis at the start, you can save by not using medication unless needed.

Regardless of whether medication is used, it is highly important to follow good sanitation practices. Keep the litter dry and loose. Raise feeders on legs, and waterers on platforms, to keep them free of contaminating litter. Do not overcrowd. When chicks are turned outside, let them run only on ground that has had no poultry or poultry manure on it for at least 18 months.

What are the correct brooding temperatures?

With most brooders, 95 degrees at the start with a drop of 5 degrees each week. Of far greater importance than the thermometer reading is the behavior of the chicks themselves. If they are too cold, they will crowd together and climb over the top of each other. If too hot, they become listless, spread their wings, and pant. When comfortable, they spread out evenly, are busy, and chitter contentedly.

How should you train chicks to go in and out of the house?

Anytime after the chicks are 2 weeks old and the "day is pretty," set all the feeders and most of the waterers outside where they can be seen easily by the chicks through the open runway door. When they get hungry, they will find their way out to the feeders. Leave some waterers inside so the slow learners still will be able to drink.

Never force the chicks outside. If they go out on their own, they will find their own way back.

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National breed conventions

The annual meeting of the **National Ayrshire Breeders' Association** will be held at the State 4-H Camp, Jacksons Mill, W. Va., May 5 to 7.

Convention plans include a tour of several Ayrshire farms in the area, as well as a visit to the West Virginia University dairy farm where the Reymann memorial herd of Ayrshires will be inspected. The business meeting will be held on May 6. The National Ayrshire Sale will be held on the afternoon of May 7, with William Carpenter, Rutherfordton, N. C., sale manager.

The 81st annual meeting of the **American Guernsey Cattle club** will be held at Miami Beach, Fla., May 4 to 7. Hotel headquarters will be at the Balmoral in Miami Beach. Convention activities will include sightseeing trips, visits to herds in the area, and a panel discussion. The business meeting will be held on Wednesday, May 7.

The 90th annual meeting of the **American Jersey Cattle Club** will be held at the Brown Hotel, Louisville, Ky., Wednesday, June 4. Convention activities begin on May 30 with the 31st Annual Folck Classic Sale, Saturday, May 31, at Springfield, Ohio. Sunday and Monday will include visits to several Jersey herds in Kentucky. The National Jersey Heifer Sale will be held at the Kentucky State Fair Grounds on Tuesday, June 3.

The **National Holstein convention** will be held in Boston, Mass., on the same date. The National Convention Sale will be held following the meeting with W. A. Baker, Exeter, N. H., manager.

Dutch try increased butterfat in milk

To control The Netherlands' unprecedented and mounting butter surplus, it was recently proposed that the butterfat content of normally standardized milk (2.5 per cent butterfat) be raised. Through this measure, more fat would reach the consumer in fluid milk, and less cream would be available for butter manufacture.

At first the government hesitated to take this step because of the increased fluid milk price that would follow, but the minister of agriculture finally allowed fluid milk to sell with a 3.5 per cent fat content on a trial basis.

This milk will retail for about 10.9 U.S. cents per quart, or about 1.5 cents more than the standardized product. The government subsidy of 1.0 cent per quart will not be paid to consumers of the higher butterfat milk.

The Dutch butter surplus has been publicized in recent press articles. According to Amsterdam's De Telegraf, 90 per cent of the annual butter export leaves The Netherlands at prices below the cost of production. This newspaper states that the Dairy Products Commodity Board purchased butter at the guaranteed price of 51.4 U.S. cents per pound and sold it to exporters at 30.3 cents per pound.

Texas dairying grows

The 12,800 Texas farmers selling milk during 1957 marketed an estimated 260 million gallons of milk, having a farm value of $115 million. The average Texas dairy producer sold about seven times more milk in 1957 than he did in 1944; almost five times more than in 1949.

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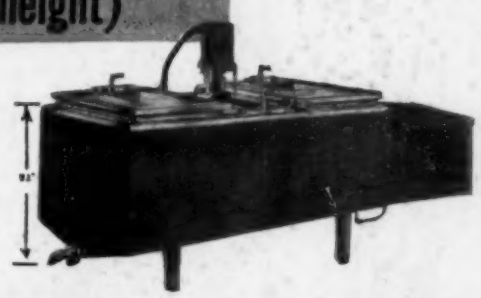

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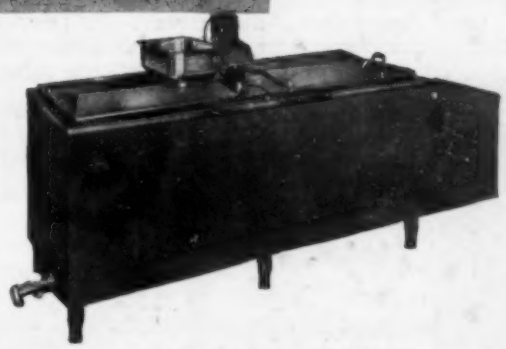

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by: Edward Martin of: Elroy, Wisconsin

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10 rules for establishing alfalfa

(Continued from page 299)

Assures shallow seed placement.

Conversion kits can be obtained from implement manufacturers, or farmers can adapt their present drills for band seeding.

Covering chains should be removed to prevent scattering seed.

Alfalfa yield can be increased by manure. However, it is better to apply manure for corn than for alfalfa. Manure contains a lot of nitrogen and because alfalfa is a legume it can get its nitrogen from the air and does not need the nitrogen in the manure.

4. **Test for boron.** It is good insurance to include 20 to 30 pounds of borax per acre in the fertilizer when establishing a field of alfalfa. Boron-deficient alfalfa may be poorer quality since it is lower in protein content. Alfalfa leaves suffering from severe boron deficiency fall to the ground. Boron also affects seed production. The cost is low, around $1 per acre.

Check with your county agent to see if you are in a boron-deficient area, or have soil tested for boron.

5. **Seed at right time.** Time of seeding and the decision to seed with a small grain depends on the fertility of the soil and its ability to supply moisture for both crops. If the soil is fertile and retentive of sufficient moisture to support both a small grain and the alfalfa, spring seedings are recommended.

For less favorable soil conditions, the rate of seeding of the small grain should be decreased by one-third to one-half the usual rate. For light sandy soils, generally because of moisture limitations, an early August seeding is recommended. With borderline cases, seedings in wheat may fail when too much nitrogen is used as a top-dressing.

6. **Use good quality seed.** Consult your county agent for the recommended variety and rate of seeding for your particular location. The selection of the variety is somewhat dependent on the length of time the alfalfa is to be left in the field.

If the stand is expected to last for several years, it is more important to have a wilt-resistant variety like Vernal or Ranger than if the stand is going to be left for two years. Be sure the variety is winter-hardy enough for your location. In general, there is no substitute for certified seed or seed of equivalent quality.

7. **Inoculate your seed.** Alfalfa will not fix nitrogen from the air unless it is supplied with plenty of the proper nitrogen-fixing bacteria. It is not safe to depend on leftover bacteria in the soil from last year's crop. Bacteria left in the soil may lose their ability to fix large amounts of nitrogen.

Inoculation of the seed is a simple and inexpensive way to insure an efficient nitrogen-converting factory in the soil. After removing alfalfa for hay for two years in Michigan, over 160 pounds of nitrogen per acre was present in the roots and tops when it was plowed under the following spring. This made a good green manure crop for corn. More than 100 pounds of this nitrogen was captured from the air by legume bacteria.

Three times out of four you benefit by inoculating the seed and the cost is only 10 cents per acre.

8. **Use special treatment.** Two examples where special treatment is necessary are the establishment of alfalfa stands in corn and on slopes (if 10 to 15 per cent or more). Some farmers are interested in eliminating oats from their

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New Hydraulic Post Driver Simplifies Fencing Operation

Shaver Mfg. Co., Graettinger, Iowa, has announced an hydraulic post driver, designed so that posts can be driven straight in any position. Using finger-tip control, you need only to place the post in position and drive it to the required depth. With no holes to dig, the post is set in one operation. The manufacturer states that the hydraulic power provides as many as 40 strokes per minute and holds the driving ram in any position.

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rotation because of their low return. Good success in establishing seedings in corn has been obtained. This new method employs a wide corn row of approximately 60 inches and alfalfa is seeded between the rows about mid-June, after one or two cultivations.

Several different types of seeding machines have been used. Examples of equipment used for this purpose are:

1. A grain drill with grass seeder attachment narrow enough to go between the rows.
2. Removing the center grain drill disk from regular grain drill.
3. Broadcast seeder mounted on a tractor.
4. Mounting a grass seeder on a cultivator which also side-dresses the corn with nitrogen during the same operation.

Packer wheels following behind grain drill seeding units are one of the best arrangements. Do not overlook the labor-saving benefits of planting corn in the tractor wheel tracks directly after plowing. Furthermore, weed control is much less of a problem when the plow-plant tillage method is used.

Be sure that plenty of fertilizer has been applied on the corn to take care of the needs of the alfalfa. It is suggested that the band-seeding method of seeding be adapted to establishing seedings in corn since a regular grain drill with the center disk removed has been used successfully. Research results show that corn yields may be reduced 5 per cent in 60-inch rows and up to 20 per cent in 80-inch rows where wide-row spacings are used.

Michigan researchers have had very good success in establishing alfalfa on slopes of 10 to 15 per cent. Over 1 million acres of this kind of now idle land are found in Michigan. Alternate strips 50 feet wide were tilled with a field-cultivator six times over a six-week's period. Lime and fertilizer were applied according to the soil tests. Seedings were made alone in early August.

The land was worked in strips to prevent erosion because of the steep slopes. This required two years to establish the seeding over the entire field. Naturally, established sod waterways down the slope should not be worked, but left in their native state to prevent washing. Excellent yields of 2 tons or more alfalfa-brome were produced.

9. **Kill those weeds.** Mow weeds to reduce competition. Investigate the possibility of using weed control chemicals 4 to 6 weeks after planting to control certain types of broad-leaved annual weeds and annual grasses. (If more detailed information on controlling weeds with chemicals is desired, reprints of the article "Here are your weed control chemicals" by E. P. Sylwester, that appeared in the May 25, 1956 issue of Hoard's Dairyman, may be obtained upon request.)

One reason why manure is recommended for corn rather than for alfalfa is because of the weed seed contained in the manure.

If the small grain is combined, cut the stubble with a mower and bale the straw so as to prevent the seeding from smothering out.

10. **Keep cows off.** It is quite a temptation to pasture an alfalfa field that has made exceptionally good growth the first season. Ample opportunity should be given the plant to store up adequate root reserves to withstand winter killing. This storage process goes on until late in the fall. Pasturing only before September 1 may be allowable, only if feed supplies are particularly short. More damage from tramping will occur if soil is wet.

Careful attention to these rules will help insure establishment of a thick stand of alfalfa. **THE END**

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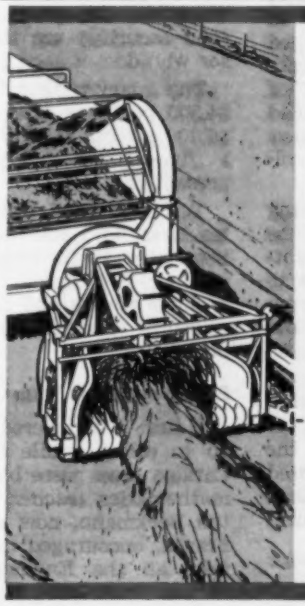

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YOUNG DAIRYMEN — *Careers in agriculture* — No. 29

"I teach college students"

A college professor of agriculture should inspire his students to become well educated and to attain a better living standard.

by Milo B. Tesar

THE AUTHOR is outlining the fine points of band-seeding in demonstration to two of his students. Information presented to the class in this way will be retained over a much longer period of time.

TEACHING in college is a very enjoyable profession which requires much more preparation than many positions. The minimum training required for most university professors is four years of college to get a degree of Bachelor of Science followed by about one and one-half to two years to secure a Master's degree in the field of specialization — poultry, crops, dairy, agricultural engineering, and so forth.

Whereas the Master's degree has been considered adequate up to now, almost all universities now require that their permanent instructors obtain the degree of Doctor of Philosophy. This usually takes two to three years after the Master's degree.

Can you afford to spend four years training after college to become a professor in college? You probably won't know whether you would like college teaching until you attend the regular four-year college course and see what college professors do.

You may have a pretty good idea what a college professor does after four years of college, but maybe you want to know now. Usually, about 9 to 15 hours per week are spent in the class room lecturing to the students about a subject like farm crops, soils, or dairying. But lecturing to 50 to 150 students who are hoping to take an organized set of notes doesn't usually come from lecturing "off the cuff."

Keep abreast of times . . .

A well-organized set of lecture notes, changed each year to follow advancements in agriculture, should be reviewed and refreshed before a lecture is delivered. This may take from one-half to two hours for each hour of lecturing. The test papers need to be graded and students need to be advised if they have problems about the course, or about their college or home life.

Committees to keep college business running smoothly and being advisor to student clubs take more than the 40 hours in the present-day working week. This is not a profession to follow if you want to punch a time clock from 8 to 5. Many evening hours are involved and Saturdays are often necessary to catch up on reports, and so forth.

Farm experience is very helpful in becoming a successful college teacher in agriculture. It is desirable since the college teacher needs the experience to understand problems presented to him by students of rural background. Farm experience is helpful to make an agricultural professor successful but not nearly as important as the basic training obtained in getting the degrees necessary to teach in college.

The author is an associate professor of farm crops, Michigan State University.

Natural teaching ability . . .

Degrees, in themselves, however, are of little value in making a good teacher. The best teachers will have a lot of "natural" teaching ability, enthusiasm for the subject, good personal habits, and probably, most important, a genuine interest in each student.

One of the best college professors I've ever had, Dr. Goodding in Nebraska, was in the superior class because he helped students solve their personal problems after classes were over. Their problem could be one of not having enough money — he'd try to help them find work; it could be that the student was trying to decide which was more important—football or farm crops. That was an easy decision for him. Or, he'd arrange to give make-up tests to the unlucky fellow who broke his ankle and missed class for two weeks. The personal interest in the student is what made him, and makes any professor, a superior "Prof."

Anyone who selects a position because it will give him security is certainly being short-sighted. Much more important than being secure is the knowledge that you are contributing to the welfare of people. And, of course, you must enjoy your work.

Most important, then, a college teacher should find happiness in his work. Fortunately for this profession, an adequate salary (and security) are the reward of the professor who does a good job in any university.

The salary range? It usually starts at about $4,500 per year after a Master's or $5,500 to $6,000 after a Doctor's degree and approaches a five-figured salary before retirement at present-day levels.

Teaching (and other duties accompanying teaching) is a full-time job during the period September 15 through early June. During the summer, the teaching load may be limited to a single course and the professor often is encouraged to conduct a research project in his own field.

Encouragement from teacher . . .

I first remembered deciding that I should go to college while milking a cow when the Catalpa trees were blooming. My biology and mathematics teacher in high school, Dr. Milton Beckmann, now at the University of Nebraska, encouraged me to go and suggested I take all the English, biology, physics, and mathematics offered in high school. What wonderful advice that was! For the student planning to attend college, English and basic science courses are very helpful.

After about three months in college, Dr. Goodding thought I might "not be too bad" so he arranged for me to work (at 25 cents per hour in 1937) to enable me to pay my way through college. That help in getting me a job helped put me through college and also influenced my choice in majoring in agronomy (farm crops).

Another wonderful professor in Nebraska, Dr. Frolik, now deceased, encouraged me to go to graduate school and, partly because of his influence, I chose Wisconsin where he received his Doctor of Philosophy degree. At Wisconsin, Doctors Ahlgren and Graber were influential in my working in forage crops and teaching farm crops to students. After three and one-half years at Wisconsin, I became a teacher and research worker in forage crops at Michigan State University.

The combination of teaching and research keep the teacher well informed on research in his field, and the teacher in him makes him fully aware that research results must be presented in talks or publications before they are useful to farmers.

Interest in students . . .

Here you noticed that several people, Beckmann, Goodding, Frolik, Ahlgren, and Graber, entered into my decision that I would work as a teacher and research man. These five names emphasize one of the great qualities which the good college teacher must have — interest in his students. Generating a little spark in a student into a flame is one of the great satisfactions of being a college teacher.

As a Doctor of Philosophy, you rarely help students physically. You can help them become better Americans by opening their minds to truth and learning. In essence, you can help in making the world safer for future generations. Where there is knowledge of right and wrong, there is no room for communism, totalitarianism, or other "isms" which threaten today's civilization.

Are you interested in becoming a college teacher but think you can't afford it? If you take English, mathematics, physics, science instead of the "soft" courses in high school and have a good academic record, you can go to college and some of the best students I knew at Nebraska, now college professors and research workers, worked their entire way through college. You can do it, if you want to!

THE END

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Your tractor can be a bronco

(Continued from page 298)

equipped with headlights and a taillight. Wagons or machines towed behind should have red reflectors in the back visible at a distance of 500 feet.

In several instances tractors overturned as the result of one wheel striking a culvert, drain, or other object on the shoulder of the road. In such cases speed was a contributing factor to tipping.

The tractor operator on the highway has a legal right to his half of the road; however, the exercise of good judgment is of extreme importance. In a collision between an automobile and a tractor it is likely to be the tractor operator who is most seriously injured or killed regardless of who "was in the right."

Stop engine to refuel . . .

Serious or fatal burns can be suffered as the result of careless fueling practices. Danger is by far the greatest with gasoline. If possible, refuel only when the motor is cold. Never refuel with motor running.

An extra rider on a tractor is literally taking his life in his hands. There is no space on a tractor intended for a rider other than the operator and there is little for an additional rider to hold on to.

Take a second look before putting a tractor in motion if small children are anywhere in the vicinity. It may save the life of a child and a lifetime of regret for the tractor operator.

It is recognized that a certain degree of maturity, physical fitness, and competence is necessary to operate an automobile. This is set forth in the requirements for a driver's license. Just because there are no legal requirements for tractor operators, it does not mean that these same qualifications are any less necessary.

A father may take great pride in the fact that his 10-year-old can handle a tractor "like a man," but he still isn't a man or even a teenager. Give him a chance to become one.

Fatigue also is responsible for many accidents. As the end of the day approaches and one wishes to "finish the job" or make "just one more round," there is a greater tendency to take chances. The philosophy that "nothing will happen to me" is sometimes subscribed to. Because nothing has happened up to this moment is no insurance that something won't happen in the next.

If you think there is a chance, **don't take it.** Operate your tractor as if your life depended on it. **It does.** THE END

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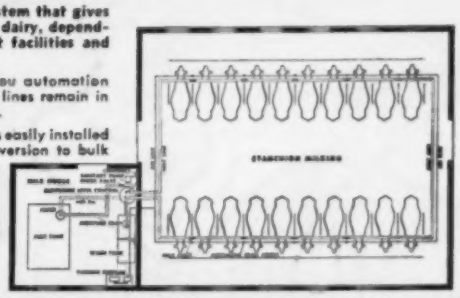

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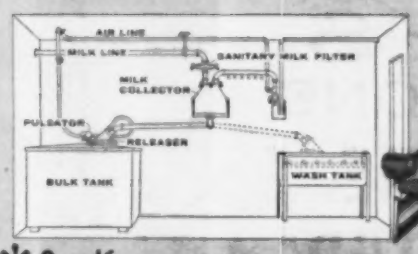

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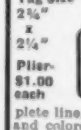

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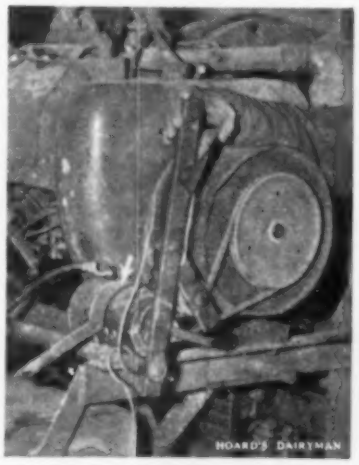
Iowa — HAROLD NEWBERG

USES SELF-STARTER



Ralph Loveland, Ohio, uses an automobile self-starter mounted on his hay baler to start the baler engine. Long cables, leading to tractor battery, power the baler self-starter. Note starter to left of lever at bottom. Lever is used to place tension on V-belt running from self-starter to baler crank wheel.

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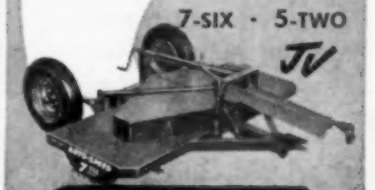

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SWINE

Keep them growing

by Fred J. Giesler

MOST little pigs are big eaters. When they are only a few days old, their growth and health demand more feed nutrients than most sows can fully supply in their milk. As the demand for food increases from day to day, the sow's milk flow normally reaches its peak from the third to the fifth week after farrowing. If this demand for additional food nutrients is not provided by the sow or in the form of creep feed, you will have hungry, slow-gaining pigs.

Often, you can get little pigs off to a fast start and provide low cost gains by creep feeding them while they are still nursing the sow. Young pigs from the larger litters a week to 10 days old often take extra feed in this way.

Provide a separate area . . .

A shallow pan will serve as the feeder at the beginning. It should be out of the sow's reach and in an area of the pen where the pigs stay most of the time.

You will be surprised at the amount of clean, fresh water young pigs will drink if it is made available to them in automatic waterers located in the same feeding area.

There are a number of ways in which you can encourage young pigs to start eating at an early age. Some good hog breeders do this by sprinkling a small amount of feed on the floor near the feeders. The natural instinct of a small pig is the urge to root something. Therefore, some farmers will place creep feed on a piece of clean sod since small pigs will eat sod in small quantities as soon or sooner than the most palatable creep feed.

There are many good commercial creep feeds on the market today besides a number of high-quality creep rations recommended by your own University.

Most of the commercial companies today do additional experimental work with their own rations in order to provide the swine producer with the very best ration possible made from high-quality products. A good creep feed will meet the following specifications:

It will contain:

1. Crude protein, 18 to 20 per cent
2. Fat, 3 to 6 per cent
3. Crude fiber, 3 to 4 per cent
4. Calcium, 1 to 1.2 per cent
5. Phosphorus, .7 to 1 per cent
6. Trace mineralized salt, .5 per cent
7. Vitamin A, 4,000 international units per pound
8. Vitamin D, 400 international units per pound
9. Riboflavin, 3 to 5 milligrams per pound
10. Pantothenic acid, 8 to 12 milligrams per pound
11. Vitamin B_{12}, 1 milligram per 100 pounds
12. Antibiotics, 1 to 1.5 grams per 100 pounds

A good creep ration for young pigs is as follows:

	Pounds
Corn, ground	40.0
Oat groats, (hulless), ground	35.0
Dried skim milk	10.0
Meat scraps	5.0
Soybean oil meal	5.0
Alfalfa (leaf) meal	4.0
Trace mineralized salt	0.5
Ground limestone	0.5

Antibiotic supplement, 0.25 to 0.5 pound of 3 to 5 grams of antibiotic per pound of supplement.

You may use soybean meal in combination with one or more sources of animal protein such as dried skim milk, fish meal, or meat scraps. This combination will give you a protein supplement high in essential amino acid content.

B vitamins, vitamin B_{12}, and antibiotics are available in the form of commercial supplements. Vitamin A and D can be added as an A and D feeding oil or in the form of a dry vitamin A and irradiated yeast for vitamin D.

Palatability is still the most important factor that makes the difference between pigs starting to eat a ration at an early age or not.

Young pigs will usually consume around 20 to 25 pounds of feed before normal weaning age at 8 weeks. These young pigs will usually eat more than two-thirds of this amount during the last two weeks of this period. You may want to check this figure by keeping records of the actual amount of feed that they eat. Remember that young pigs make rapid gains and are most efficient in converting feed to meat. It is important, therefore, that they get plenty of good feed at an early age.

Once pigs are 35 to 40 pounds in weight, they can be placed on regular growing rations. The per cent of protein can be reduced from 18 to 20 per cent down to 16 per cent. When the pigs reach 100 to 125 pounds of weight, a 14 per cent protein ration is sufficient. After 125 pounds, a 12 per cent protein ration will be enough to carry them on out to marketing weight. Remember, pigs well started will mean more dollars on the early market.

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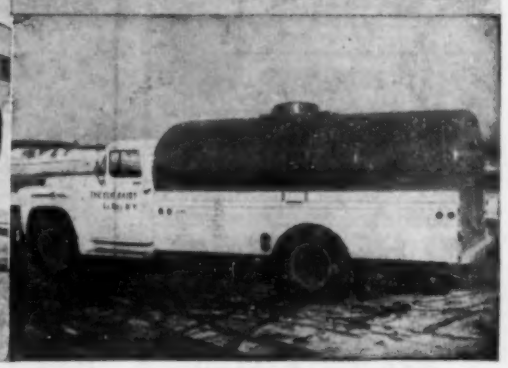
Hauls Bigger Payloads On Every Trip...

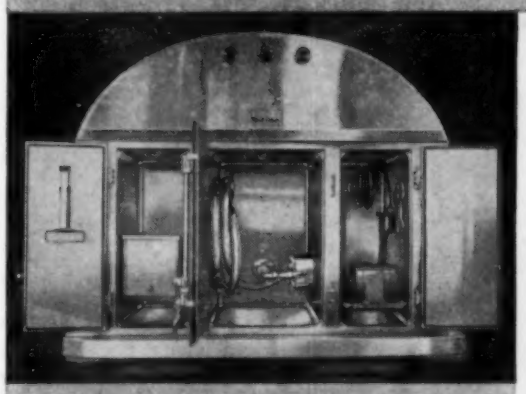
Low Center Of Gravity Assures Better Roadability—Safer Driving

Above — This 1600 gallon Kari-Kool Truck Tank is owned by the Supreme Grade A Dairy, Wausau, Wisconsin.

Right — This 2000 gallon Kari-Kool Truck Tank is owned and operated by The Le Roy Elm Dairy, Le Roy, N. Y.

Above — Mr. Leonard E. Hawk, Lima, Ohio, with his 1800 gallon Kari-Kool Truck Tank. Mr. Hawk is a hauler for National Dairies.





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- Heavy-duty, refrigeration-type, chrome-plated, door hardware.
- Sample and ice chest protected from heat and dust in separate compartment.
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Write Dept. 53 for prices and specifications

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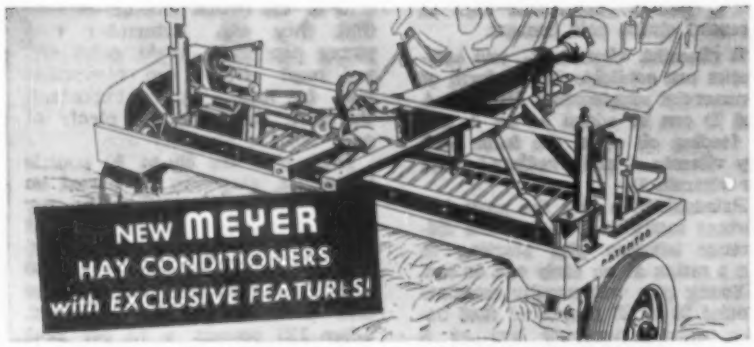

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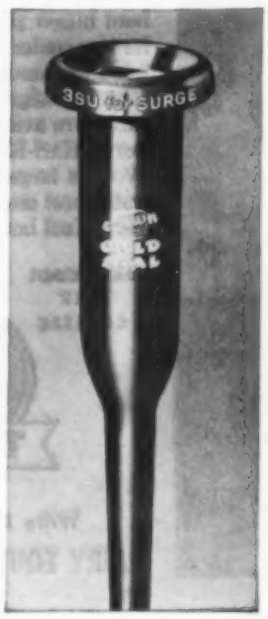

ARTIFICIAL BREEDING

What is a good A.I. bull?

High fertility, freedom of disease, desirable production, and type in progeny are important attributes of a good sire.

by H. A. Herman

A SUCCESSFUL bull in artificial breeding must pass many crucial tests. Here are the major ones:

1. **He must be highly fertile** and produce semen, which, after extension to 40 to 150 times the original volume, will settle 70 to 75 per cent of the cows on the first insemination.

2. **He must sire daughters above** or equal to breed average and the average of all A. I. sires. This means about 11,301 pounds milk and 477 pounds butterfat on 305 days, 2x-milking, mature basis.

3. **He must sire daughters that milk out readily,** are of even temperament, and fit into the scheme of our automated dairy picture.

4. **His daughters must be long wearing,** carry good udders, reproduce regularly, and be at least Good Plus or Desirable in conformation.

5. **The bull must not be too old.** Usually a dairy bull is 7 to 8 years old before he is "proved" in a preliminary way. At best, his average life, either in natural or artificial service is only two or three years.

Studies at the Florida Experiment Station, supported in part through the National Association of Artificial Breeders, indicate that proved sires last just as long in artificial service as in natural breeding. In both instances the average sire past 11 years of age fades out of the picture. These facts influence the price which can be paid for any proved sire.

There are exceptions. Cache Valley Breeders in Utah has a Holstein sire past 16 years of age which is still carrying on. There are a few other bulls close to this age still doing a good job in artificial breeding but they are the exception, too. The fact is that an artificial breeding organization which keeps a "naturally proved" sire at 6 to 7 years of age can expect only about 2.7 years actual use.

6. **The sire must be healthy.** Sires in artificial breeding must not only be TB and brucellosis free, but they must pass rigid tests for vibriosis, trichomoniasis, leptospirosis, and even vaginitis before they are committed to service.

Members of the National Association of Artificial Breeders are committed to a "Sire Health Code" in cooperation with The American Veterinary Medical Association which embraces all of these points. Many a promising sire is turned down because of health reasons. We believe this a sound policy. The faith and integrity of legitimate artificial breeding organizations simply would not permit a sire of questionable health status to be used.

7. **He must be a registered sire.** All of the sires used in artificial breeding are registered (purebred), beef sires included.

Unless a sire is recognized, and of bloodlines desired by patrons they simply will not use him very heavily. This fact alone may have a decided bearing on the price paid for a given sire. After all, an artificial breeding organization must give patrons the sire and the service they desire.

In our free enterprise system which governs the artificial breeding program in America patrons have a choice! Nowhere else in the world is so much latitude in choice of sires and service possible. It is an obligation and a privilege which the artificial insemination program in America appreciates and attempts to measure up to.

8. **The successful sire must boost production** in herds at all levels. This is a big order. Few sires can meet this demand. It is very easy for an average bull used in artificial insemination to raise the level of production when mated to 300 - pound - butterfat producing cows, and even 400-pound producers. These are really a "dime a dozen" in modern dairying. The only way **the true worth of a great bull is ever determined is to mate him to high-producing cows and test the offspring under the same environment. This tends to equalize, but not rule out, environment, the "jinx" in all sire evaluation.**

The really good sire raises the production if mated to a 300, 400, or 500-pound butterfat producer. Nearly all sires show a gain on 300-pound-fat cows, but that can scarcely be significant. Sires such as Sir Bess Ormsby Fobes Dean, used by New York Artificial Breeders, has 1,255 D.H.I.A. daughters that average 12,534 pounds milk, 463 pounds of butterfat. It is estimated he sired over 18,000 progeny.

Lauxmont Admiral Lucifer, used in Pennsylvania, has 1,478 D.H.I.A. daughters that average 11,807 pounds milk, 443 pounds of butterfat. He has an estimated 15,000 A. I. daughters. Both these sires showed an increase even when mated to 500-pound-butterfat producers. Their offspring, where "offically" classified, are average or above.

There are other sires close to the two mentioned above in accomplishment. It is obvious, however, that truly great sires are not plentiful. This, in itself, should prove a great challenge to cattle breeders in America. Such sires, once discovered, can contribute much to milk cow improvement in America where, in 1957, the average sire in artificial breeding serviced about 2,300 cows.

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The rate for advertising in this department is 30 cents per word per insertion, except for "help wanted" and "position wanted" advertising which is only 20 cents per word per insertion. Count address. "J. W. Foley, Route 13, Green Bay, Minnesota," is considered as eight words. Blind advertisements must be signed: "BOX #, care Hoard's Dairyman, Fort Atkinson, Wisconsin" and count as 8 additional words. Count each initial or group of figures as a word. SEND CASH OR CHECK WITH ORDER. Copy must reach us four weeks ahead of date of issue. NEW ADVERTISERS MUST FURNISH REFERENCES. Send order to HOARD'S DAIRYMAN, Fort Atkinson, Wisconsin. Different rate for Livestock Display advertising.

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MASTI-KURE: Limited amount of High Potency Penicillin formulas still available. MASTI-KURE #7 STAR with 750,000 units Penicillin, 250 mg Dihydrostreptomycin, 25 mg Neomycin, 500 mg Sulfamethazine, 500 mg Sulfathiazole, 10 mg Cobalt Sulfate, 50 mg Papain. Twelve 12cc tubes $6.85. MASTI-KURE GIANT SYRINGES: with 1,000,000 units Penicillin, 1,000 mg Dihydrostreptomycin, 50 mg Neomycin, 750 mg Sulfamethazine, 750 mg Sulfathiazole, 10 mg Cobalt Sulfate, 50 mg Papain. Six 30cc syringes $6.95. Also available for a limited time at this price — 3,000,000 units procaine penicillin in 10cc vials, aqueous or oil suspension. Box of ten vials. $4.50. Available at better feed stores or write direct to MASTI-KURE PRODUCTS Company, North Franklin, Connecticut. Agents and dealers wanted in United States and Canada. 4-spl

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DEPRESSION PRICES. WE SELL CHEAP. Save 75% off new and used tractor parts, crawlers and wheel tractors. 190 makes and models. 1958 catalog ready. Send 25 cents refundable. SURPLUS TRACTOR PARTS CORPORATION, Fargo, N. Dak. 1-12

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180 ACRES DAIRY farm located in Walworth County. Two sets of buildings. Excellent condition. Equipped with bulk tank and barn cleaner. Modern homes. 25% down. Owner will finance on Land Contract. Priced to sell fast. THORNTON REALTY CORPORATION, 16 S. Broad Street, Elkhorn, Wisconsin. Telephone Parkview 3-3260.

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ALL MODERN HOME and excellent white painted outbuildings. On heavy soil 238 acre Barron County farm on blacktopped highway convenient to railroad towns. About 100 acres plowland. Balance pasture. Some good hardwood timber. Only about $80 per acre or $19,000 and well worth it. 65 Holsteins (30 cows—400 pound average). Complete machinery. Reasonably priced to buyer of farm. Early possession. BAKER LAND & TITLE COMPANY, Land Specialists since 1874, St. Croix Falls, Wisconsin.

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160 ACRE FARM. Northwest of Elkhorn. Two cement silos. Drive-through barn, new milk house, combination hog barn and corn crib, large hen house, 2 good machinery sheds. 9 room modern home, orchard. THORNTON REALTY CORPORATION, 16 S. Broad Street, Elkhorn, Wisconsin. Telephone Parkview 3-3260.

FLORIDA DAIRY LAND. 714 acres lake front property. Rich muck soil with water control. Adjacent to high ground for shade and loafing. Land will grow green foliage year round, and will produce high-grade silage at low production cost. Dikes, canals, and pumps installed. Low taxes, Rapid growth of Florida makes greater milk production a must. Present producers price of grade A milk 62c. This is one of the few properties in Central Florida combining rich muck, high land, and water control. If you are an experienced, ambitious dairyman, this deserves an inspection trip. We can show you this land is grossly underpriced at $175.00 per acre, terms. CARL COURTNEY, Realtor, 75 E. Colonial, Orlando, Florida.

78 ACRE FARM located in Walworth County. 60 to 70 acres under plow. Barn 22 stanchions, 2 box stalls. Chicken house 40x20, tool shed 30x100, new grainery and corn crib combination. 6 room house. New oil furnace. Milk house. Must sell due to sickness. Complete with all personal property. Feed, machinery, cattle, etc. ready to start farming. Full price $36,750, down payment $18,000 to $20,000. Balance on Land Contract. Personal property amounts to $8,500. THORNTON REALTY CORPORATION, 16 S. Broad Street, Elkhorn, Wisconsin. Telephone Parkview 3-3260.

160 ACRE DAIRY Farm with modern home, grade A barn, elevated milking and pipeline. $32,000 including all farm machinery. 45 good cows, large silo, plenty outbuildings. $15,000 yearly gross. Anyone with $10,000, some dairy experience, and a desire to succeed can soon own this farm and going business. Recent heart attack prompts sale. PETE MILLER, Rhineland, Missouri.

VIRGINIA DAIRY FARM, 860 acres. Milk base on Richmond market. 2 barns with capacity of 110 milkers. New cinder block 100' x 30' calf house. 6 room main house, four tenant houses. Artificial breeding services and DHIA available thru local associations. Registered Holsteins. Will sell complete with cattle, machinery, etc., or real estate only. To settle an estate. Write BOX 45, care Hoard's Dairyman, Fort Atkinson, Wis. 6-2

ATTENTION ALL DAIRYMEN! Going 169-acre producer! Complete with 55 milk cows, Holstein bull, registered Hereford bull, 11 grade cows, 10 calves, 530 poultry, tractor, equipment, new hay baler, pick-up truck, about 8,500 bales hay! Neat 6-room 3-bedroom modern home, basement (see picture in catalog). Two large barns, water piped in both, part converted for poultry raising purposes, new Grade A tile milk house, garage, tenant house, etc. 134 high-producing tillable acres, 75 bottom, 35 wooded, 3 ponds, creek for pasture. Only mile town. Start milking and make money the day you take over—$29,000 complete! Free spring catalog, bargains coast to coast! UNITED FARM AGENCY, 1304-HD Consumers Building, Chicago 4, Illinois.

CENTRAL WISCONSIN DAIRY Farm for sale, lovely 80 acre farm. 77 acres under plow, only 5½ miles to Marshfield, 35 head choice Holstein cattle. All modern home with automatic oil heat. Large barn, 2 silos, complete line of modern, like new machinery including 2 tractors, chopper and combine. $9000 down, balance like rent at 4% interest. Contact VERN STEVENS, Route 3, Marshfield, Wisconsin. Phone Spencer 2236, Rep. Johnson Realty.

FARMS FOR RENT

FOR CASH RENT, $2500. 207 acre dairy farm. 177 acres under plow. Good buildings, black ground, little rolling, no woods or low land. 2 new silos, new basement barn, new machinery shed. Also farm is for fast sale for $23,500. CLARENCE ACKER, Middleton, Wisconsin. Phone Terrace 6-3451.

BUSINESS OPPORTUNITIES

SMALL ARTIFICIAL BREEDING business affiliated with American Breeders Service. Growing business in prosperous Oregon dairy section. BOX 52, care Hoard's Dairyman, Fort Atkinson, Wisconsin.

FREE PICTURE FOLDER: "How to make $3,000 yearly, sparetime, raising earthworms!" OAKHAVEN-24, Cedar Hill, Texas. 6-*

FREE INFORMATION, make $2000 or more yearly, in back yard, raising hybrid earthworms, small investment, breeders guaranteed. RAINBOW 16, Justin, Texas.

SALESMAN WANTED

INCREASE PRESENT INCOME. Build growing sideline, full time business. No investment. Farmers, Agents, Dealers. Take orders for Campbell's Gro-Green Liquid Fertilizer Concentrates. Free sample, sales kit. CAMPBELL CO., Rochelle 326, Illinois. 23-8

MAKE $75 UP WEEKLY. Full or part time. Take orders for America's largest selling liquid fertilizer. Used by farmers since 1946. Liberal profits. No investment. Write "NACHURS" PLANT FOOD COMPANY, 524 Monroe Street, Marion, Ohio. 1-8

FEED SALESMEN make extra money selling America's lowest priced feed cart. Write ECONOMY PRODUCTS, Delavan, Wisconsin.

HELP WANTED

WANTED, MEN to sell old established line of barn equipment and barn cleaners. Must have farm background. Various good territories available. Contact Berg EQUIPMENT COMPANY, Marshfield, Wisconsin. 5-2

WANTED, sober, dependable single man that enjoys working with dairy cattle. Right party may later go on shares. BOX 49, care Hoard's Dairyman, Fort Atkinson, Wisconsin.

HELP WANTED

EXPERIENCED MILKER, married, steady work, pipeline parlor. BOX 631, Fallon, Nev. 4-spl

EXPERIENCED GARDENER and caretaker on modern farm near Minneapolis. Must be handy with tools and interested in flowers. Have excellent living quarters for refined couple without children. Opportunity for wife to help out in owner's home if willing and able. Salary open. Living quarters, light and heat furnished. Make written application for interview stating qualifications and references in first letter. JAMES E. KELLEY, Owner, Spruce Shadows Farm, 2901 E Old Shakopee Road, Minneapolis 20, Minnesota. 5-2

NEED, HERDSMAN, single or married, to milk, feed and care for 70-cow Guernsey herd with base on Virginia market. Salary: percentage of milk check. Send references. BOX 43, care Hoard's Dairyman, Fort Atkinson, Wisconsin. 5-2

HERDSMAN for registered Jerseys. Modern equipment. North central location. Excellent opportunity for good man. State qualifications, references, and salary. BOX 50, care Hoard's Dairyman, Fort Atkinson, Wis.

OPPORTUNITIES for a licensed Veterinarian in the heart of the Red River Valley of North Dakota located in Cass County 50 miles Northwest of Fargo. This is a highly diversified farming area which has approximately 6000 head of livestock All applications considered, references. C C. STEVENS, Page, North Dakota.

WANTED, TENANT for 250 acre dairy farm, 50 cows, 3 stall walk-in electric cooler. Owner will finance all livestock, rent 50-50. BOX 48, care Hoard's Dairyman, Fort Atkinson, Wisconsin. 6-3

WANTED, housekeeper, Northern Ohio dairyman, age 50. BOX 51, care Hoard's Dairyman, Fort Atkinson, Wisconsin. 6-2

CAPABLE, EXPERIENCED Dairyman for Grade A tested Jersey herd in Minnesota. Bulk tank, barn cleaner, Surge milkers. Good manager, no drinker, on share or part interest basis. BOX 54, care Hoard's Dairyman, Fort Atkinson, Wisconsin. 6-2

POSITIONS WANTED

HAVE SOLD MY Dairy farm and have two good men available at once. Men in Chicago area. Reply room 401, 110 N. Franklin Street, Chicago.

YOUNG ENGLISHMAN, recently arrived in United States, seeks position as D.H.I.A. tester or artificial breeding technician. No actual experience but well educated with agricultural college training. Owns car. No preference regards state but at present in east. BOX 46, care Hoard's Dairyman, Fort Fort Atkinson, Wisconsin.

EXPERIENCED DAIRY FARM manager, all phases, college graduate, 30 years old, married. Desires position with good purebred or commercial herd. BOX 47, care Hoard's Dairyman, Fort Atkinson, Wisconsin.

MARRIED MAN wants dairy job in North or West. Hand and machine milker. Care for herd. A. G. WEBB, Pineola, North Carolina.

AGRICULTURAL GRADUATE in Dairy Husbandry, experienced, desires position as working manager, top references. Best offer accepted. BOX 53, care Hoard's Dairyman, Fort Atkinson, Wisconsin.

SWINE

FOR SALE, top quality Wisconsin feeder pigs, 8-10 weeks old. All farmer raised around here, no runts. All veterinary inspected. Get your pigs from a licensed dealer and get toppers. CLARENCE ACKER, Middleton, Wisconsin. Phone Terrace 6-3451. 1-*

POULTRY—BABY CHICKS—DUCKS

HELM'S IMPORTED Danish Brown Leghorns Official Records 317 Points. Bigger bodied, larger eggs. ILLINOIS HATCHERY, Metropolis, Illinois. 1-6

FOB. ROCKS, REDS, Leghorns, Hampshires, Austrawhites, $6.99; Pullets, $14.99; surplus pullets, $12.99; Rock, Red Cockerels, $4.99; heavy mixed, (no Leghorns) $3.99; Deepfreeze, $2.99; surplus, $1.49. Use postcard. Catalog 60 offers. BUSH HATCHERY, Clinton, Missouri. 6-6

DOGS

GENUINE English Shepherd and Collie Pups. Healthy and strong. Guaranteed heelers. Year's trial. Choice of sex. Spayed females a specialty. Priced right. CLOVERDALE KENNEL FARM, Ackley, Iowa. 18-*

SHEPHERDS, COLLIES. Outstanding Heelers, Watch Dogs. ZIMMERMAN FARMS, Flanagan, Illinois. 2-*

RABBITS

RAISE ANGORA, New Zealand rabbits or mink on $500 month plan. Free details. WHITE'S RABBITRY, Delaware, Ohio. 6-*

OF INTEREST TO WOMEN

LEARN professional cake decorating. Details free. DECO-SECRETS, Venice 34, Calif. 14-*

OIL COLORING PHOTOGRAPHS, a fascinating hobby or profitable sideline for those with artistic talent. Learn at home. Easy simplified method. Free booklet. NATIONAL PHOTO COLORING SCHOOL, 835 Diversey Parkway, Dept. 3183, Chicago 14. 5-2

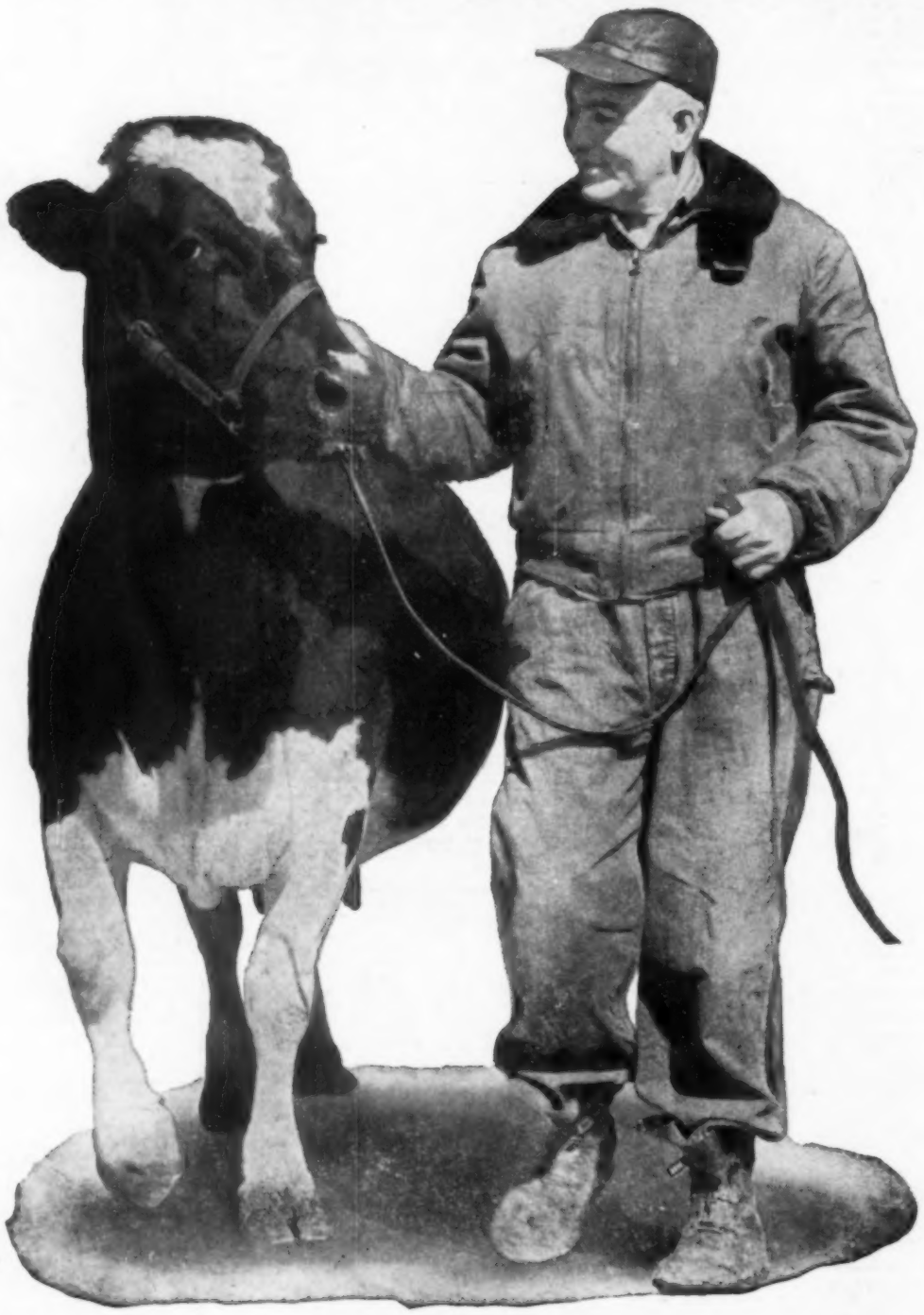
INVISIBLE REWEAVING, $5.00 in one hour possible reweaving burns, tears, moth-holes. Spare-full time. Free details. SKIL-WEAVE, Dept. C643A, 355 W. Madison, Chicago 6, Illinois. 6-2

MISCELLANEOUS

DON'T FEED SPARROWS. Make your own trap and catch thousands. Free particulars. ROY VAIL, La Grange 16, Indiana. 4-6

MORE SPECIAL OPPORTUNITIES ON PAGE 339

Step out in FRONT with . . .
REGISTERED HOLSTEINS



You take a big step toward bigger dairy profits when you buy your first REGISTERED HOLSTEIN.

Consumers today demand moderate-fat milk . . . REGISTERED HOLSTEINS produce it naturally and in bulk quantities.

And no matter how you measure a dairy cow — production, efficient use of forage, long life, adaptability — REGISTERED HOLSTEINS lead the field.

That's why each year nearly 20,000 dairymen buy their first REGISTERED HOLSTEIN . . . why REGISTERED HOLSTEIN popularity has soared to new highs during the current period of narrow operating margins.

Cost-conscious dairymen the country over are joining the big swing to REGISTERED HOLSTEINS . . . the breed that's tops in the profit league!

96

Sign of the Times

With dairymen from coast to coast increasingly cost-conscious, the extra profit potential of the REGISTERED HOLSTEIN cow was reflected in new highs in virtually every phase of breed activity in 1957.

For the fourth time in as many years, more Holsteins than ever before were registered — 212,445. The 130,948 officially transferred to new owners set another record.

And 1957 was the third straight year in which both of these totals were greater than those of all other dairy breeds combined!

Still more new highs were established in official breed improvement programs: more than 86,000 REGISTERED HOLSTEIN cows on official test . . . more than 38,000 officially classified for type.

This unprecedented participation underscores the continuing progress which has carried the REGISTERED HOLSTEIN cow to unchallenged leadership . . . the constant study and selection which have tailored her to today's conditions.

fit the farm . . . fit the market

Registered HOLSTEINS
Breed of the Times

THE HOLSTEIN-FRIESIAN ASSOCIATION OF AMERICA
BRATTLEBORO, VERMONT

Special Opportunities

DAIRY CATTLE

REGISTERED—Guernsey calves. K. V. FARM, Elkhorn, Wisconsin. 11-*

KEATING BROTHERS FARM offers large selection fresh and springing selected cows and heifers, strictly quality. Dairymen—buying on order will save you time and money. Call or write Fort Atkinson, Wisconsin. Telephone JOrdan 3-5905. 18-*

KENYON BROTHERS FARM serving the dairy farmer for forty years. Large selection of choice Holstein cows and first calf heifers, fresh and close springers, service bulls. T.B. and Bang's tested. In carload or truckload lots. KENYON BROTHERS CO., Elgin, Illinois. Phone SHerwood 1-1818. 19-*

ATTENTION DAIRYMEN and cattle dealers. We can furnish you Holstein heifers to freshen this fall. Cows of all breeds. Let us know your needs. We can supply them. BOTTEMA FARMS, Bridgeport, Indiana, Plainfield 8266. 20-*

SOUTH WESTERN distributor of top northern dairy cattle fresh and springers. R. K. (BOB) MILLER, Guthrie, Oklahoma. Phone Butler 2-3435. 17-*

HIGH QUALITY Holstein and Guernsey Springers, yearlings, bred heifers and calves. Write or call for prices to J. W. and BILL GEURKINK, Baldwin, Wisconsin. Telephone 322 or 21F31. 11-*

HOLSTEIN cows and heifers with production, type and size from our foundation Wisconsin herds. Artificial breeding, calfhood vaccinated, Bang's and T.B. tested. PIPER BROS., Watertown, Wisconsin. Telephone 2170. 6-*

HOLSTEINS—Large selection of choice springers and fresh cows and heifers. TB and Bang's tested. STANLEY BURNIDGE & SON, "Grand Hotel for Dairy Cattle," Elgin, Illinois. (Hotel accommodations). Established 1918. Also good selection at Claremore, Okla. branch — Phone Claremore 116. 1-24

CHOICE HOLSTEIN cows and heifers, all ages. Vaccinated. T.B. free. Fieldman available, or will fill orders as directed. Whitewater Dairy Association, DEAN HARNDEN, Whitewater, Wisconsin. Phone Palmyra 358. 1-*

BUY YOUR DAIRY HEIFERS from Wisconsin's largest dealers. Holsteins 16 to 17 cents per pound, Guernseys 15 cents per pound. If you need springing cows and heifers we can supply these also. LINK BROTHERS, INC., Minong, Wisconsin. 2-*

I HAVE MOST all breeds choice dairy cows and heifers, fresh and springers. Mountain grown are best. Will deliver. A. L. KELTNER, Greeley, Colorado. 23-*

WISCONSIN HEAVY SPRINGER Holstein heifers, calfhood vaccinated, TB and Bang's free. IWO JIMA FARMS, Spurlington, Kentucky. Phone 3603, Campbellsville, Kentucky. 4-4

WISCONSIN DAIRY COWS and heifers. All ages, Vaccinated. 500 to 600 lb. heifer calves, (car load lots). On hand all times, DR. HARRY T. LARSON, Route 2, Ashland, Wisconsin. 2-*

REGISTERED Holstein cows, heifers. Certified, Accredited. PAUL VAN CLEVE, Littlestown, Pennsylvania. 2-*

REGISTERED Holstein calves. D. L. CAVEY, Elkhorn, Wisconsin. 11-*

BUY YOUR VACCINATED dairy cows and heifers direct from the farmers where quality prevails. GEORGE E. SWANSON, Rice Lake, Wisconsin. Phone 944-R. 5-17

HOLSTEIN, GUERNSEY or Brown Swiss dairy heifers suitable for foundation or export from Wisconsin high production herds. Write for free price list. OTTO VANDERBURG, North Prairie, Wisconsin. 5-6

CHOICE SELECTION of Holstein dairy cows and heifers. Bangs and T.B. tested. GEORGE BRICHER AND SON, St. Charles, Illinois. 5-14

CHOICE HOLSTEIN Cows and Heifers, open or bred, calfhood vaccinated. VERNUS STROMMEN, Blanchardville, Wisconsin. 2-6

NORTHERN dairy cattle. Registered or select high grades. Direct from quality herds. R. F. CULLER, Amery, Wisconsin. 14-*

REGISTERED HOLSTEIN, AYRSHIRE cows and heifers, accredited, vaccinated. PEARSON BROTHERS, Avonsyde Farms, Waterdown, Ontario, Canada. 2-spl

CANADIAN Registered Holsteins—Young vaccinated cows and heifers. Buy direct from the farms. Elgin County Holstein Breeders Club. DON SHORE, R.R. #6, St. Thomas, Ontario, Canada. 4-spl

REGISTERED Holstein heifers, calf-hood vaccinated, 4-H calves. W. A. STRAUSS, Watertown, Wisconsin.

PUREBRED HOLSTEIN bulls, sired by Wisconsin Leader and Pabst Regal. SUGAR RIVER FARMS, Verona, Wisconsin. 6-3

FOR SALE, 30 choice 650 lb. tested and vaccinated Holstein heifers. 60 large fall freshening Holstein heifers. BILL CLOW, Plainfield, Illinois. 6-2

ATTENTION DAIRYMEN. Attend Wisconsin's largest dairy auction every Wednesday afternoon. From 300 to 500 head Wisconsin dairy cattle to choose from. CENTRAL WISCONSIN LIVESTOCK AUCTION, Tomah, Wisconsin. For other information call or write Jerry Randall, Augusta, Wisconsin. 6-12

FOR SALE: Herd of sixteen Guernsey cows. Florham and Coldspring bloodlines. Serviced by Foremost. JOHN PUPAVA, Route 3, Waterloo, Illinois.

You Can't Fool ME!

I'll tell you whether that cow is any good or not. And I won't be guessing. I'll tell you whether or not it will pay you to keep her heifer calves or to veal them.
You keep me posted up for three years, and I'll come pretty blamed close to telling you whether you are a dairyman or just another cow-milker.

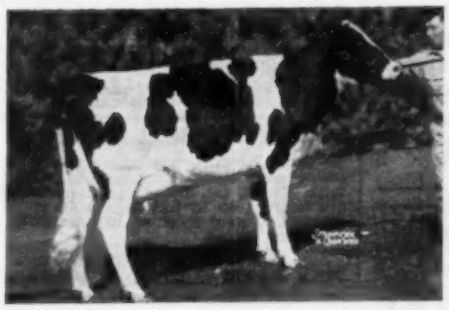
Who Am I?

I'm a daily milk-record sheet. Printed by Hoard's Dairyman to help you keep track of your cows.
If you will just drop a post card in the mail, addressed to Hoard's Dairyman, Fort Atkinson, Wis., they will gladly send you a sample card and tell you how little it costs to have me do my stuff for your profit.

A Milk Record Sheet

CURTISS BULLS

Sire the Right Kind of Daughters



MOOSEHEART WIL-BURKE PET

The 1st place 2-yr. old heifer in a class of 40, at the International Dairy Show, Chicago. She was elected Honorable Mention All-American 1957. She milked 65 to 70 lbs. per day at the show. Owned and shown by Mooseheart Farms, Mooseheart, Ill.

Pet was sired by the Curtiss bull, Mooseheart Excellency "VG," whose first two daughters made 13297-4.3%-573 Fat and 12654-4.0%-500 Fat actual on 2x-305d-as 2-yr. olds.

Curtiss also owns the sire of Mooseheart Excellency, Pabst Sir Roburke Rag Apple "EX" Gold Medal Proven Sire with 47 dtrs. av: 14027-3.7%-519-305d-2x-ME, which is + 1863M + .06% + 77F over their dams. This great bull has 4 dtrs. classified "EX" and many "VG." He has sired All-Americans and Reserve All-Americans as to type, and national and state records to 27694M-1020F at 3 yrs. in production.

FLASH! Another Curtiss sire, Pabst Sir Roburke Fobes "VG" has a daughter CURTISS CANDY SALLY CURTISS that has just set a New York State record for both Milk and Fat at 3y7m with 26,270 Milk—3.77% — 984 Fat. She is owned by Wisner Farms, Warwick, New York.

Call your nearest Curtiss technician. We have more than 900 in 43 states.

Five Dairy Breeds, 3 Beef Breeds and one Dual Purpose.

CURTISS IMPROVED STUD SERVICE, INC.

A Subsidiary of Curtiss Candy Company

OTTO SCHNERING, Founder

CARY ILLINOIS

Improved STUD SERVICE CURTISS FARM

AMERICAN BREEDERS SERVICE SELECTS PROVED SIRES

from the ENTIRE U. S. FOR YOUR HERD

PROOF — EVERY ABS SIRE must be a *High Index Proved Sire* based on a comparison of his milking daughters and their dams with proper consideration given to environmental influences.

PROGENY — EVERY ABS SIRE must have sired daughters of good size, with deep bodies, good feet and legs and well balanced, strongly attached udders.

PEDIGREE — EVERY ABS SIRE must be of sound pedigree — desired by all good breeders.

PLUS -- Freedom from Disease

Every Sire Proved Great . . . The Trend of Times in '58

Call the American Breeders Service Representative in your area, or write directly to the American Breeders Service.

Always Looking for Great Sires and Top Technicians

AMERICAN BREEDERS SERVICE

325 N. WELLS ST., CHICAGO 10, ILL.

Serving Breeders in 43 States. Studs at: Carmel, Indiana, Madison, Wisconsin, Palo Alto, California

Sales Announcements

March 22, 1958—Holsteins. Wesley W. Randall Dispersal, Lewiston, Minnesota. Farm located 4 miles south of Lewiston. Sale starts at 11 A.M. T.B. Tested—Bangs tested — Calfhood Vaccinated. Finance available. Write for information. PIPER BROTHERS, Sales Managers, Watertown, Wisconsin.

March 25, 1958—Guernseys. LaCrosse County Guernsey Breeders 43rd annual spring sale. West Salem, Wisconsin.

March 25, 1958—Guernseys. Lambert & Dickerson Dispersal. 80 head registered Guernseys. For catalogs write, Lambert and Dickerson, Hiawatha, Kansas.

March 29, 1958—Guernseys. Auction at Anchor Point Farm, Nashotah, Wisconsin. A. C. Fiedler, owner. 45 registered milking females. Catalogs on request from, Delbert H. Kingston & Associates, Cary, Illinois.

March 29, 1958—Holsteins. Konkolville Dispersal, Stevens Point, Wisconsin, at the Andrew Konkol farm 6 miles east of Stevens Point on highway 10 to J and then 2 miles north. Sale starts at 11 A.M. For catalog write Francis Darcey & Sons, sale managers, Watertown Wisconsin.

March 29, 1958. Holsteins—Broadlawn Dispersal, at the farm 10 miles S.W. of Elgin, Illinois or 2 miles East of Highway 47 on Plato Center Road, then 1 mile South and ½ mile East. 90 Registered Holsteins. John Abbott, Route 3, Elgin, Illinois and A. W. Abbott, Downers Grove, Illinois, owners. Sale Managed by Freeport Auction Service, Burlington, Illinois. Auctioneers: A. C. Whitie Thomson, Burlington, Illinois and Wm. Pat Williams, Huntley, Illinois.

March 31, 1958—Holsteins. 44th anniversary Holstein Sale. Watertown, Wisconsin. At the Darcey Sales pavilion, 7 miles north of Watertown on highway 26. Sale starts at 12 noon. For catalog write Francis Darcey & Sons, sale managers, Watertown, Wisconsin.

March 31, 1958—Brown Swiss. The Waukesha spring sale, Waukesha, Wisconsin. At the Sale Pavilion. 60 head. Consigned by leading breeders nearly nation wide. Sale under the management of Norman E. Magnussen, Lake Mills, Wisconsin.

April 5, 1958. Holsteins—Illinois state spring sale, 12:00 noon. Fox Valley Livestock Center, St. Charles, Illinois. 50 Registered Holsteins. For information contact, Russel Mathews, Woodstock, Illinois, Route 2, State Secy.

Apr. 7 & 8, 1958—Guernseys. The Meadow Lodge Farms complete dispersal, at the farm, 9000 Southwest 29th Street, Oklahoma City, Oklahoma. Sale starts at 10:30 A.M. each day. Kent B. Hayes, owner, Melvin Martin, Herdsman. If you are interested in purchasing Guernseys at auction or private treaty contact The Merryman Company, Sparks, Maryland, Sales Agents and Auctioneers of purebred Guernseys for 40 years.

April 14, 1958—Holsteins. Mrs. Julia Zorn Schultz dispersal. Watertown, Wisconsin. At Darcey's Sales Pavilion, 7 miles north of Watertown. Sale starts at 12 noon. Francis Darcey & Sons, sale managers, Watertown, Wisconsin.

April 14, 1958. Holsteins — Wolverine Classic, Monday, 10:30 A.M. In the Wolverine Purebred Livestock Sales Pavilion, 2½ miles west of Williamston, Michigan or 6½ miles east of East Lansing on U.S. 16. T.B. and Bang's tested. Milking cows Mastitis Tested. Mostly calfhood vaccinated. Bank terms—See Floyd Kehrl, National Bank of Detroit, Plymouth, Michigan. C. B. Smith, Sales Manager & Auctioneer, Williamston, Mich.

April 25, 1958. Guernseys — Iowa State Sale. Waterloo, Iowa. Lots of heifers. 4-H calves. Bulls and fresh and springer cows. For catalog, write: M. W. Sprole, Clerk, Mason City, Iowa.

GUERNSEYS

SELLING AT AUCTION

45 REGISTERED GUERNSEY MILKING FEMALES

MARCH 29, 1957

AT ANCHOR POINT FARM
NASHOTAH, WISCONSIN
A. C. FIEDLER, Owner

This includes all of the sound milking females in Mr. Fiedler's herd. Production records up to 606 lbs. fat on 2x. Heavy springers fresh and several due during base period, all from proven bloodlines. Catalogues on request from:

DELBERT H. KINGSTON & ASSOCIATES
CARY, ILLINOIS

Choice registered Guernsey bulls by proven sires, such as HORSESHOE CONRAD ASTERBILT and out of at least 550 pound dams, for sale. Large selection to choose from, serviceable age and younger. Calfhood vaccinated. Bang's free, TB accredited herd. Write or visit us for pedigrees and full particulars.

BRANDTJEN FARMS, Farmington, Minn.

JEFFERSON COUNTY GUERNSEY BREEDERS' ASSOCIATION

Guernseys . . . Registered and Grade Females. All Ages . . . ALSO BULLS. Free Service to Buyers. Call Lyle Kiesling at 804J1, Jefferson, Wisconsin.

GRANDVU GUERNSEYS

Offering select Guernsey bull calves up to serviceable age. **Sired:** by McDonald Farms Pre Melvin, an outstanding type and production Sire. **Dams:** are daughters of the great proved high production Sire, Flying Horse Masters Royal, large, typy, good uddered cows with records up to over 10,000 lbs. milk, 550 fat as 2-yr.-olds, 305—2x milking. **Heifer calves for club work for Sale,** the blue ribbon kind. **The Right kind at the Right price.** Write or come to **GRANDVU FARMS, Wrightstown, Wisconsin.**

GUERNSEY SALE

LaCrosse County Guernsey Breeders
43rd annual Spring Sale.
WEST SALEM, WISCONSIN
TUESDAY, MARCH 25
High grade and registered Guernseys.
LaCrosse County Guernsey Breeders, Inc.
WEST SALEM, WISCONSIN

GUERNSEYS

Waukesha County can furnish you with most any kind of Guernseys you desire—grade or pure bred. Lee Burlingham, fieldman, at your service. **Waukesha County Guernsey Breeders' Assn., Waukesha, Wisconsin.**

EARN MORE PER COW

Long-Living GUERNSEYS produce longer at high production levels

- ★ Guernseys' natural inheritance of long life means high lifetime production per cow.
- ★ Guernseys are most practical for today's modern dairy methods. They are gentle, easy to handle . . . thus making the most efficient use of labor.
- ★ Guernseys are efficient roughage converters.
- ★ Guernsey Milk has outstanding marketability.

Start a Guernsey Herd now . . . write for information today.

THE AMERICAN GUERNSEY CATTLE CLUB
850 Main St., Peterborough, N. H.
☐ Send FREE information on how to start a Guernsey herd and buy breeding stock.
☐ Send FREE information about the profitable business selling nationally-advertised Golden Guernsey Milk.
Name.....
Address.....
Town.....State.....

DELBERT H. KINGSTON & ASSOCIATES
Complete Sales Service . . . Auction and Private Treaty . . . Our listings include Proved Sires, outstanding bulls, cows, heifers. Also a few top show prospects. Fieldmen at your service. **Cary, Illinois —Box 404—Phone: MErcury 9-5531.**

IOWA STATE

GUERNSEY SALE

Waterloo, Iowa, April 25th. Lots of heifers—all ages—4-H calves with discount to 4-H buyers. Bulls, and fresh and springer cows.

For catalog write
M. W. SPROLE, CLERK, MASON CITY, IA.

Subscription expiring soon? Renew at today's rates. Five full years for only $3.00.

FOR SALE

Heifers due December, February and March. Also yearlings and heifer calves. Choice well grown individuals by proven sires, out of A.R. cows and from cow families with great production inheritance. Also top herd sire prospects. Reasonable prices.

TARBELL GUERNSEY FARMS
SMITHVILLE FLATS, NEW YORK

AYRSHIRES

Profitable AYRSHIRES
The Breed with Production and Type
LARGEST PRODUCERS OF 4% MILK
at lowest feed cost
The Dairyman's choice for greatest net returns from his cows
Write for literature or list of breeders near you
AYRSHIRE BREEDERS ASS'N. 10 Custer St., Brandon, Vt.

REGISTERED AYRSHIRE BULL CALVES
Make your selections now for spring delivery. Herd on continuous test for 30 years, and has developed dependable cow families that are mated with proven sires. Write for pedigrees and prices.
STRATHGLASS FARM Box 71 Port Chester, N.Y.

NOW YOU CAN BUY
POLLED AYRSHIRE BULL CALVES
That are from high producing families
That are of Carefree Farms & Penshurst Breeding
That give you excellent type calves
That are priced at prices sure to please
WRITE FOR PEDIGREES AND PRICES
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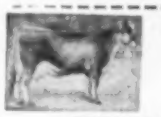

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BELOIT WISCONSIN

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242 classified animals that average 84.4% 216 tested cows that average 573 lbs. fat (305-2X-ME)
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Choice Dairy cows and heifers. Jerseys, Guernseys, Shorthorns, Holsteins. Fresh and coming fresh soon, all T.B., Bang's tested. Come and make your selection, or will fill your order, or help you buy.
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MY ENTIRE HERD OF JERSEYS
2 Excellent herd Sires—4 mature cows—14 heifers in milk—25 bred and open heifers. All females by proven Sire with generations of production testing on the dams. We have sold the milking herd and are now offering this young group of superior bred animals.
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Silver Medal Type Sire

A PILOT SON FROM A "VERY GOOD" CHIEFTAIN DAUGHTER

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MONDAY, APRIL 14th at 10:30 o'clock a. m. in the Wolverine Purebred Livestock Sales Pavilion, 2½ miles west of Williamston, Mich. or 6½ miles east of East Lansing on U. S. 16.

60 HEAD OF AMERICA'S FINEST REGISTERED HOLSTEIN COWS, HEIFERS AND BULLS.

Featuring some of the top herd sire prospects of the United States and Canada from such noted herds as Carnations, Elmwood, Pabst, Glenafton, Bond Haven and others of equal note.
Excellent cows, many "V.G." cows that are real prospects for Ex; show prospects for every division, as well as great record animals.
This sale has furnished more top show ring winners and animals that go on and make great records than any other sale in recent years. It has always been noted for animals that are ready to develop and where breeders get more for their money.
T. B. & Bangs Tested. Milking cows Mastitis Tested. Mostly Calf. Vacc.
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At the farm 10 miles S.W. of Elgin, Illinois, or 2 miles East of Hwy. 47 on Plato Center Road, then 1 mile South and ½ mile East.

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A herd tested for production for many years and analyzed for type—complete pedigrees. TRITOMIA blood is concentrated along with Ilehamwood Ormsby Joe and Pabst Comet.

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THE SHOW WINDOW SALE OF THE SPRING

11 A.M. Waukesha Sale Pavilion, Sale Headquarters, Hotel Avalon.

MONDAY, MARCH 31, 1958 Waukesha, Wis.

60 Registered Brown Swiss
3 BULLS • 57 FEMALES
Personally selected from the Nation's leading breeders.

SPECIAL 4-H & F.F.A. JUNIOR PROJECT SALE

Ten per cent of the purchase price will be refunded upon written word of the leader that the project has been completed.

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30 Bred Heifers, many from high record dams.
10 Milking Cows—the kind you like to add to your herd.
10 Open heifers and young Herd Sires—the herd building kind.
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To introduce our breeding we offer this handsome bull born August 12, 1957, sired by Hayes Haven Roeland Supreme whose sire's two nearest dams are the highest cows in the world, in 305 days, 2x milking. The sire's dam has 5 records over 800 lbs. fat ave. 3.9 test.

The calf's dam has C.T.A. record of 13,690 milk, 479 fat 2 year old out of Hayes Haven Mathias Symbol, classified very good and a proving of 152 lbs. fat plus, priced at $250.00. For more information of this bull or others, write:

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Select foundation Holstein cows and heifers with production, type, and size from our Foundation Wisconsin herds. Artificial Breeding, Calfhood vaccinated, Bang's and T.B. tested. Fieldman service or will fill orders at your direction.

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300 HEAD of DAIRY COWS

Holsteins, Guernseys fresh and springing heifers for your selection on hand at all times. Come to Dodge County, Wisconsin, 50 miles northwest Milwaukee, where heavy producing Holstein cows are raised from foundation pure breds. Priced to meet your demands. Many heifers out of D.H.I.A. herds. All cattle calfhood vaccinated, transportation facilities for any number.

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Office—Fulton 6-2046

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If you're looking for cows or heifers come to Dodge County where good Holsteins are raised. Buy them first-handed and save expenses. We have 250 head of bred and springing grade and purebred Holstein cows and heifers on hand at all times. Can furnish transportation for any number large or small.

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Choice Holstein Grades, registered cows, heifers, yearling heifers and baby calves. T. B. and Bang's tested. Can furnish any breeds on order. I handle choice cattle. One hundred fifty to one hundred seventy-five holsteins on hand at all times.

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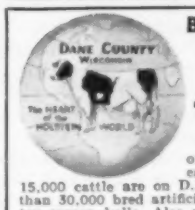

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Best selection from one of the world's largest dairy counties. Over 15,000 cattle are on D.H.I.A. test and more than 30,000 bred artificially from some of the top proven bulls. Also a few serviceable bulls from high record dams. Fieldman sales and service. For information write: **Frank E. Cairns, Fieldman, City County Bldg. Madison, 9, Wisconsin.**

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TOP HOLSTEINS — TOP SERVICE

Select well grown cattle of superior breeding from this outstanding dairy area, where customers return year after year for more. **You, too,** should buy in Richland County. **Norman Rasmussen,** Fieldman, The Richland County Holstein-Friesian Ass'n., **Lone Rock, Wis.** Phone 3345.

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Nine excellents in first official classification at Wisconsin State Reformatory. Three Gold Medal dams just reported. Sixteen Gold Medal Proven sires. Longevity — over 100 100,000 pound certificates. Type, production and proven bloodlines. Where the Burkes are proven. **For information, write:**

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State Department of Public Welfare

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200 to 300 head of quality springing Holstein and Guernsey heifers and young cows, year around. Picked for production, type and clean well formed udders. Herds bought and sold. Satisfied customers, lifetime experience. All cattle are well fed and cared for. Mostly calfhood vaccinated and all are tested. Springing heifers shipped on approval, or cattle may be seen anytime. Two miles northwest of

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Buy direct from farms where top production dairy cattle are raised. Over 300 to select from. Located in "Heart of Indiana's Dairyland," Kosciusko County. Experienced truckers available. Also Shetland ponies.

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This month we offer the calf pictured above born November 20, 1957. He is sired by our Sr. herd sire, Wis Spotlight (ex.). This calf's dam Stoffell Dixie Pride Agnes won first prize Jr. yearling at the Tennessee Valley and Southeastern Fair This calf is dammed by an excellent cow who made 15.783 lbs. milk and 597 lbs butterfat. For price and pedigree write:

STOFFELL'S MILK FARM

Route 12 Knoxville, Tennessee

REGISTERED HOLSTEINS

25 cows, all but three fall fresheners; 15 are 2-3 year olds, none over 6; 20 bred heifers, freshen starting August. All home-bred, production tested, pleasing type and size. Calfhood vaccinated. Cows mostly bred to son of Miss Paganok Gingerbread Betty, National Record Four Year Old with 29033 Milk, 4.4%, 1284 Fat, 2X. Heifers all bred to son of Paganok Mistress Jennifer, a ton cow with 25640 Milk, 3.95%, 1010 Fat, 2X, (SA). All are priced individually, cows starting at $400, heifers at $350, one or all. A foundation opportunity.

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BOX 177

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Services of—W. L. Baird—Arthur F. Bennett—James L. Gordon—Reynold Bennett at your disposition.

REGISTERED AND GRADE HOLSTEINS

from top purebred and high grade herds in ten counties—many artificially bred. We service over 700 of the better herds in Wisconsin. At the present time, we have over 100 purebred, registered cows and heifers due to freshen this spring or fall; also, a great many high grades. We specialize in truckloads or carloads.

TELL US YOUR WANTS AND WE WILL QUOTE PRICES.

ATTEND THESE TWO SALES

For Foundation Cattle of High Calibre

Konkolville Dispersal

STEVENS POINT, WISCONSIN

At the Andrew Konkol farm 6 miles East of Stevens Point on highway 10 to J and then 2 miles North.

SATURDAY, MARCH 29th SALE STARTS AT 11 A.M.

115 HEAD OF REGISTERED AND HIGH GRADE **HOLSTEINS**

D.H.I.A. herd average 1957, 11,049 milk, 3.7%, 411 fat. Included in sale are 57 cows, 11 bred heifers, 17 yearlings, 30 calves from August on. Featuring 2 exceptionally well bred herd Sires. One is a son of Carnation Pontiac Beauty VG, the national champion producer at 3 years, and a daughter of Carnation Homestead Revelation. Also selling a bred heifer from a 1141 lb. fat Excellent cow, also a heifer from the national champion milk producer (at 4 years on 2x) who is classified VG.

★ ★ ★ ★ ★ ★ ★ ★

44th Anniversary Holstein Sale

MONDAY, MARCH 31st WATERTOWN, WISCONSIN

(AT THE DARCEY SALES PAVILION, 7 MILES NORTH OF WATERTOWN ON HIGHWAY 26) SALE STARTS AT 12 NOON.

75 HEAD OF THE MIDWEST'S FINEST REGISTERED **HOLSTEINS**

Featured in the sale, from Rock River farms, Byron, Illinois, a son of the maternal sister of Haven Hill Crescent Gewina Count Ex. (94 points), the national champion Holstein producer with 1523 fat, 38,878 milk. He is sired by Budd Farm Master Duke, a son of the 941 lb. fat ex. Dunloggin Duchess Anna. A fancy daughter of Wis Leader with over 600 lbs. fat. An 89 point VG 2 year old making 500 lbs. fat. Will be reclassified before sale and could make excellent. Several VG cows—a few select yearling bulls with superb breeding and records—a number of heifers bred for early fall from high record dams. **For catalogs of these sales send 50c to**

FRANCIS DARCEY & SONS, Sales Managers, Watertown, Wis.

★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★

Mrs. Julia Zorn Schultz Dispersal

MONDAY, APRIL 14th WATERTOWN, WISCONSIN

(At Darcey's Sales Pavilion) 7 miles north of Watertown. Sale starts 12 noon.

DHIA herd average 11,318# milk, 3.7%, 420# fat in 317 days. Herd is certified — vaccinated.

33 HEAD OF REGISTERED HOLSTEINS

in the ZORN Herd, plus 40 Selected Grades, 7 Registered Holsteins

Consigned to supplement the herd

FRANCIS DARCEY & SONS, Sales Managers, Watertown, Wis.

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Badger

INTRODUCES THE

WORLD'S STRONGEST BARN CLEANER CHAIN

YOU CAN SEE THE DIFFERENCE

Bigger, heavier and 50% stronger this new BADGER Chain has 50% more wearing surface at wearing points than the present popular Badger chain. Full center webb design eliminates any stretch. Pioneers in 4-way flex chain, Badger now has made the greatest advance barn cleaner chain design.

BADGER HAS:

- The largest pins
- The heaviest forgings
- The biggest flat bar
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- Forged paddle link 50% stronger
- Rivets double swedge for larger heads
- Smooth construction for cleanliness

DESIGNED FOR THE LARGEST BARNS

Your Badger specialists are trained and equipped to make immediate installation. Most of the standard sizes in Barn Cleaners and Silo Unloaders are in stock at your dealer. DON'T WAIT — DO IT NOW.

Paddle cut to fit your gutter size. Paddle is bolted snuggly into notch of forging.

A BADGER SILO UNLOADER will get your silage down for you with the flick of a switch; handles grass and corn silage, frozen or unfrozen; proven to be lighter, faster and easier to install.

A BADGER BUNK FEEDER will feed your livestock automatically, saving you time, money and labor. You can increase your herd without increasing your labor.

This combination assures you fluffy, palatable silage regardless of weather conditions.

You don't have to deplete your working capital to purchase Badger equipment. Use our convenient, low cost, Badger "Pay as You Chore" Plan.

YOU'LL GET BETTER PERFORMANCE AND LONGER WEAR FROM A BADGER.

Don't wear yourself out day after day. Do your chores and feed your cattle the Badger way.

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Barn Cleaners ☐ Silo Unloaders ☐
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Address

City State

BADGER NORTHLAND INC.
BOX 31, DEPT. H KAUKAUNA, WIS.

Marshland abortions blamed on nitrates in weeds

Nitrates in weeds probably account for many of the mysterious abortions which have been occurring on unimproved marshland pastures.

In tests last year University of Wisconsin researchers J. M. Sund, M. J. Wright, R. E. Nichols, and Joe Simon found high rates of abortion from otherwise healthy cows on unimproved marshland.

Red-berried elder, certain species of goldenrod, stinging nettle, white and purple boneset seem to be the weeds most responsible; cows generally ate these and they contained high amounts of nitrates. Bull thistle, Canada thistle, burdock, lambsquarter, pigweed, and young plants of cinquefoil are also included in the group of weeds which store nitrates but these were not always present in the pastures studied.

Weeds which do not seem to be responsible for the abortions are sedges, milkweed, spirea, willow, linaria, and many others. Some pastures contained as many as 90 species of weeds.

This research has indicated the possible cause of the trouble, and has suggested ways to avoid abortions on such pastures; improve the pastures by seeding and fertilizing, and use sprays, if needed, to eliminate any surviving weeds.

It is important to spray weedy areas with 2,4-D, the researchers say. If there is much brush, some 2,4,5-T in the mixture would help get a good kill. Avoid pasturing until the grass has made good growth and the weeds have dried down because plants killed by 2,4-D may contain large amounts of nitrate.

Cattle don't seem to eat the trouble-making weeds unless they're forced to, the researchers noticed.

This year, the researchers plan to study nitrate content of weeds at various stages of growth, nitrate levels of grasses and legumes, forage nitrate level as influenced by fertilization and climatic conditions, and other questions of nitrate content in pasture plants.

Sund believes further investigation of the nitrate problem may lead to explanations for occasional abortions and deaths on grass silage, corn silage, oat silage, hay, and the occurrence of silo gas.

There are some three million acres of peat or muck land in the state where such abortions can occur, the researchers say. Abortions not believed due to bacterial infections in some herds in central Wisconsin marsh areas have often been near 100 per cent of all pregnant animals.

In 1954 some 400 were reported in one county alone. Last summer 115 abortions were reported from 21 farms in 10 counties. Reports of abortion from unknown causes have come from 42 counties.

Milk production losses, as well as animal losses, make this an important economic problem in lowland dairy areas. The researchers believe a spray of 2,4-D for weedy pastures would be among the best possible investments dairy farmers could make, particularly if their herd had a history of summer abortions on marsh pastures.

If you know a crippled child who is not receiving help, notify your local Easter Seal Society.

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John J. Weber
Anamosa, Iowa

Using KYLAGE to preserve 320 tons of Brome & Alfalfa grass and 180 tons of Oats in Stack, Bunker and Concrete Stave silos... Mr. Weber tells of the excellent results obtained:

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Ask your State College about KYLAGE or write: U.S.D.A. Experimental Station, Beltsville, Maryland

FREE BOOK: "Tips on making better silage." Send for your copy of this helpful book today.

Tests show that cattle eat more KYLAGE preserved silage... need less costly supplements. Dustless, easy to handle, safe to work with inside silo, KYLAGE works with all forage crops.

"Kylage"
THE DOUBLE ACTION SILAGE PRESERVATIVE

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P. O.

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DEALERS: Some Territories Still Available

CHEMICALS OF QUALITY SINCE 1905

VETERINARY COLUMN

E. A. WOELFFER, D.V.M.

Red water disease

Red water disease (bacillary hemoglobinuria) is an acute infectious disease of cattle, sheep, and, occasionally, hogs. The infection occurs almost entirely in the states of California, Idaho, Nevada, Oregon, Montana, Louisiana, Utah, and Texas; as well as in parts of Mexico and Chile.

The organism responsible for this infection is called *Clostridium hemolyticum*. If the germ is taken up in feed or water, it is absorbed and localizes in the liver where under favorable conditions, it multiplies and produces a poisonous product (toxin).

Red water disease is primarily a water-borne disease of cattle and sheep pastured on swampy or poorly-drained areas. Forage harvested from such areas occasionally is infectious.

Symptoms . . .

In cattle, the appetite, and rumen and bowel activity suddenly ceases. Respiration usually is shallow and labored. The temperature often rises to as high as 106 degrees. It drops to a subnormal level a few hours before death. A bloody diarrhea containing an excess of mucus often develops. The urine becomes dark red in color, translucent, and foamy.

In sheep, symptoms are similar to those in cattle but more difficult to detect. The death rate is very high, usually exceeding 95 per cent in untreated animals.

Prevention and treatment . . .

Specific bacterins are employed to prevent the disease from occurring. They confer a relatively solid immunity for about six months. In areas where the disease is seasonal, one pre-seasonal dose usually is adequate. Where it occurs throughout the year, semiannual immunization is usually practiced.

For treating sick animals, large doses of specific anti-serum are given intravenously, particularly if the treatment is given early in the onset of the disease.

Large doses of antibiotics are useful but are not as effective as anti-serum which has the ability to also neutralize the toxin. Anti-serum, therefore, is the treatment of choice.

Often stimulants and supportive drugs are indicated. They should be administered in moderate doses. Avoid rough handling of animals and prevent overexertion. Feed, particularly concentrates, should be withdrawn until recovery is well-advanced but ample fresh water should be continually supplied.

LEAKY TEATS

We have a cow that is fresh for about a month with her third calf. About noon she starts letting her milk run. She would be giving nearly 60 pounds this year but due to the leakage she gives less than last year. Is there anything that can be done about this condition?

Kiel, Wisconsin H. S.

To overcome leaky teats, have your veterinarian inject with a dental needle a drop or two of Lugol's solution or Proliferol in four or five locations immediately adjacent to and around the teat opening.

The operation usually needs to be repeated one or more times at intervals of about 10 days. If the openings are excessively large, results are not always satisfactory.

LAMB COCCIDIOSIS

Would you please describe lamb coccidiosis and the remedy for it.

Raymond, Minn. H. K.

Coccidiosis in sheep usually is due to mixed infections. The most serious outbreaks are seen in lambs 6 to 12 months old. Symptoms usually show up within two to four weeks after confinement in the feedlot.

In farm flocks, coccidiosis is most likely to occur in lambs 1 to 3 months old. The infection often localizes in the middle and terminal ends of the small intestine and occasionally in the first portion of the large intestine.

There is loss of appetite and a transient diarrhea with soiling of the hind quarters. When infection is severe, profuse diarrhea, straining, and discharges of dark liquid or bloody feces occur. The lamb loses weight and appetite.

Ten per cent of the animals may die and pneumonia and other complications frequently develop. Animals that survive usually recover after a week or 10 days.

Coccidial infections are often self-limiting without medication. Treatment, however, is recommended since it will reduce oocyst production, hemorrhage, and diarrhea; and, of course, shorten the course of the disease and save the lives of some individuals. Sulfonamides and furacin have been found most effective for treating the infections. Your veterinarian is able to recommend the treatment of choice.

WINTER DYSENTERY

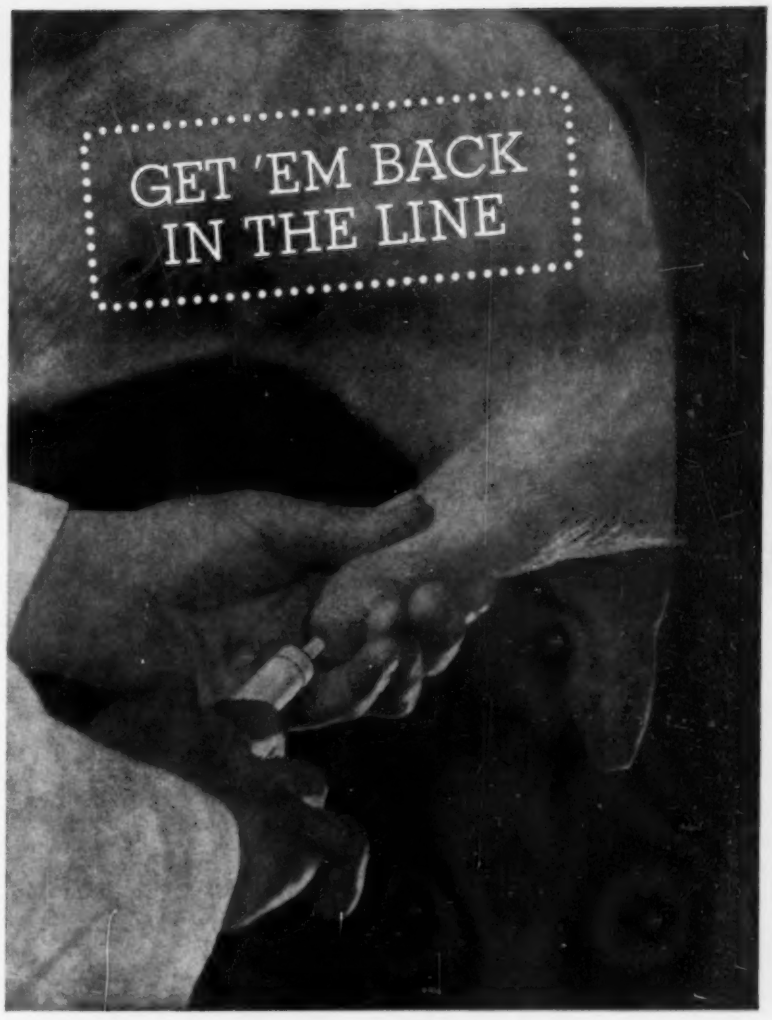
Please give me information on dysentery in dairy herd. We are just getting our herd back in condition after all of them had this infection. Is it carried in barn by someone who has had an infected herd? Will we have to disinfect our floors?

Sandusky, Michigan H. H.

Winter dysentery is very infectious and is readily spread from one herd to another, probably by neighbors, salesmen, cow buyers, inseminators, veterinarians, and so forth. The cause is believed to be a virus.

Generally the disease does not recur year-after-year in the same herd. Usually there is an interval of three or four years. This suggests building up of a temporary immunity in recovered animals.

Sanitation and disinfection of floors, and so forth, is always a good precautionary measure. In your case, however, this does not seem necessary at this time for the specific purpose of preventing a recurrence of the disease.



Stubborn mastitis cases respond to Soxipent

U.S. PAT. NO. 2728704

Soxipent combines cobalt with 2 selected antibiotics and 2 sulfas in an exclusive formula to give you a potent, fast-working weapon against infectious mastitis. The combination is so effective that no organism usually associated with mastitis can withstand it.

Soxipent persists until bacteria are killed. Consistently overcomes even the most stubborn mastitis cases. You can use Soxipent in healthy quarters, too, to prevent the spread of infection. At the first sign of mastitis in your herd—treat with Soxipent.

Prevent infection with Nolvasan®

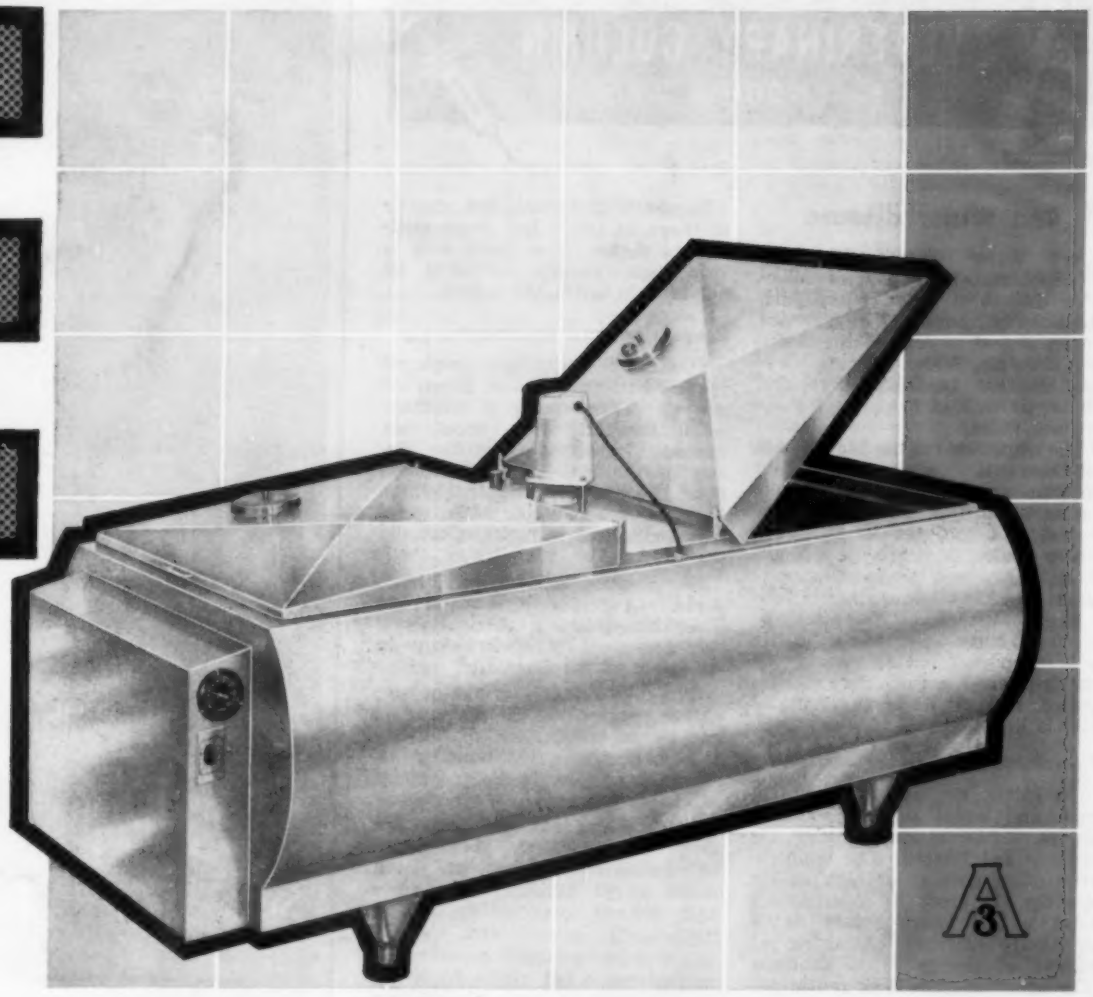
Nolvasan sanitizing solution quickly kills mastitis-causing organisms. Prevents the spread of infection. Use it daily as an udder wash, for dipping teat ends after milking, and for sanitizing equipment. Non-irritating to the skin, will not chap, odorless.

For effective herd control of mastitis use both Nolvasan and Soxipent, dispensed only by veterinarians.

It always pays to **consult your veterinarian** *he knows best —what's best*

FORT DODGE®

FORT DODGE LABORATORIES, INC.
FORT DODGE, IOWA



Excellent design

Easy cleaning

Economical operation

Exact calibration

Enduring dependability

Efficient milk handling

all add up to . . .

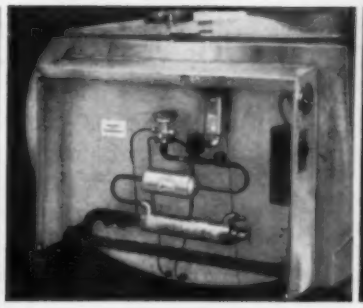
EM-BEE

Think EM-BEE when you think bulk milk tanks and you'll choose the tank that offers all of the most wanted features.

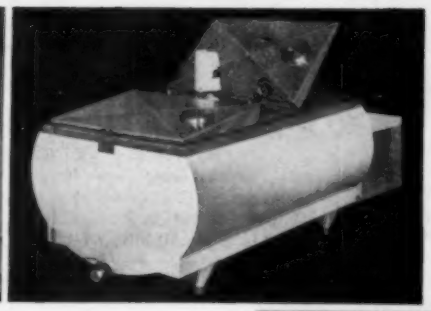
The all new, low EM-BEE offers the ultimate in bulk milk handling efficiency in a range of sizes from 150 through 1500 gallon. On all tanks you have a choice of either all-stainless steel or a mild steel, painted exterior. Self-contained tanks available in sizes from 150 through 300 gallon.

All EM-BEE Bulk Milk Tanks employ efficient, economical direct-expansion refrigeration. The unique construction featuring no metal-to-metal contact between the inner liner and the outer jacket is a major factor in the long life and economical operation of the EM-BEE tank, as it results in a minimum of heat gain and a reduction of condensation.

Other quality EM-BEE features include a built-in control panel, interchangeable covers, pipeline inlet in strainer hole lid, greaseless agitator motor, measuring stick mounted in bridge, corkboard and fiberglass insulation, and the new low, sturdy, eliptical shape.



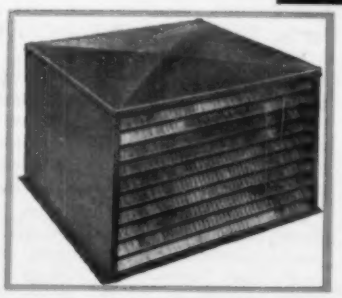
Complete control assembly is mounted on the end of each tank in a compact, easily accessible cabinet.



EM-BEE tanks through the 300 gallon size are available in self-contained models with either painted, mild steel (as shown) or stainless steel exteriors.

Whether you are pipelining or pouring milk into your EM-BEE you'll appreciate it's convenient, labor saving low height.

Now . . . a new condensing unit shelter for remote installations. EM-BEE offers a prefabricated, inexpensive shelter made from durable galvanized steel that will protect your condensing unit from the weather for years. You will appreciate its neat appearance and the ease with which the top can be removed for quick access to the unit.



Distributorships available in some areas.

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